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Canadian Nuclear
Safety Commission

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WE
DO WHAT IT TAKES TO
KEEP
CANADA
AND CANADIANS
SAFE

CANADIAN NUCLEAR SAFETY COMMISSION

| annual report 2011–12



Canada

The Canadian Nuclear Safety Commission (CNSC) regulates all nuclear activity in Canada and is at the forefront of nuclear safety. We strive to ensure that Canadian nuclear activities are among the safest and most secure in the world.

The CNSC regulates all nuclear activity in Canada – from uranium mining to power generation, nuclear research, industrial and medical applications of nuclear materials, and waste disposal.

As leaders in our field, we are experts with a strong focus on action: We enforce our very strict licence requirements and vigilantly monitor licensees to verify they are following the rules.

We do what it takes to keep Canada and Canadians safe!

LETTER TO THE MINISTER

The Honourable Joe Oliver
Minister of Natural Resources Canada
Ottawa, Ontario

Sir:

I have the honour of presenting to you the Annual Report of the Canadian Nuclear Safety Commission for the fiscal year ending March 31, 2012. The report has been prepared and is submitted in accordance with Section 72 of the *Nuclear Safety and Control Act*.



Michael Binder
President and Chief Executive Officer
Canadian Nuclear Safety Commission





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MESSAGE FROM THE PRESIDENT

I am pleased to present the Canadian Nuclear Safety Commission (CNSC) Annual Report for 2011–12. This year's annual report focuses again on the CNSC's role as Canada's authority on nuclear safety. Time and again throughout the past year, our expert, knowledgeable and focused staff demonstrated their commitment to keeping Canada and Canadians safe.

In 2011, the international nuclear sector faced many challenges in the wake of TEPCO's Fukushima Daiichi nuclear power plant accident in Japan. It required the CNSC, other national nuclear regulators and nuclear power plant operators around the world to re-examine their operations and be able to assure the public of the industry's continued safety. During this time, the CNSC was Canada's source of reliable and timely information as events in Japan unfolded.

At the CNSC, we continue to focus on taking strong action and we remain steadfast in working with our international counterparts to ensure the safe and secure operation of major nuclear facilities at home and abroad. In addition to convening a Task Force to evaluate operational, technical, and regulatory implications of the Fukushima events, the CNSC engaged an External Advisory Committee of independent experts from outside the nuclear sector to assess its processes and responses to the accident. All of these recommendations have been integrated into a robust action plan, which will further enhance the safety of Canada's major nuclear facilities. The plan is available on the CNSC Web site.

With respect,
Michael Binder

In other initiatives, staff continued to support the Joint Review Panel (JRP) for the proposed Darlington New Nuclear Power Plant Project in the municipality of Clarington, Ontario. The CNSC has also been assisting a second JRP established to review Ontario Power Generation's proposed Deep Geologic Repository project to construct and operate a facility for the long-term management of low- and intermediate-level radioactive waste in Ontario.

Consultation with the public, licensees and interested organizations is an important part of the CNSC's commitment to transparency, as demonstrated by our focus on outreach, Web presence and Participant Funding Program (PFP) this year. CNSC employees have travelled across the country to participate in outreach activities with various targeted communities or to inform the public via "CNSC 101" sessions on our roles and responsibilities. Since its launch in 2011, the PFP has been opened six times and has awarded funding to 16 recipients to facilitate interventions at Commission hearings and inform the decision-making process. These are just some of the ways that the CNSC gathers feedback from interested parties.

Year after year, our accomplishments continue to showcase the CNSC as Canada's independent nuclear regulator with highly skilled, professional staff who are dedicated to our core commitment to Canadians: that we will never compromise safety.

CANADIAN NUCLEAR SAFETY COMMISSION OVERVIEW

VISION

To be the best nuclear regulator in the world

MISSION

To regulate nuclear activities to protect the health, safety and security of Canadians and the environment, and to implement Canada's international commitments on the peaceful use of nuclear energy



Caption: The CNSC's headquarters are in Ottawa and we have offices at each of Canada's five power reactor sites, a site office at Chalk River Laboratories and four regional offices across the country.

A LICENSING, REGULATORY AND OVERSIGHT ROLE

Under the *Nuclear Safety and Control Act* (NSCA), the CNSC licenses, regulates and establishes technical requirements for all nuclear-related activities in Canada. All those wishing to carry out nuclear-related activities – including activities related to the design of equipment, the construction, operation, decommissioning and abandonment of nuclear facilities, and the production, possession and use of nuclear substances – must first obtain a licence from the CNSC. We provide clarity on regulatory expectations and we oversee their activities to ensure they are following our requirements.

The Commission is the CNSC's decision-making body and makes licensing decisions for all major nuclear facilities in Canada.

Our staff participate in many national and international technical projects and meetings to improve the safety and security of nuclear facilities and activities here in Canada and around the world. These projects and meetings address areas ranging from new nuclear reactor designs, aging facilities and decommissioning practices to the effects of radiation on people and the environment, and nuclear non-proliferation activities.

The CNSC's Audit Committee, with three external and two internal members, reinforces the effectiveness of internal audits. It oversees key areas and processes such as values and ethics, risk management, management control and accountability reporting.

The CNSC's Evaluation Committee is also an essential component of the organization's governance structure. It serves as an advisory body to the President on the CNSC's evaluation plan, resourcing and final evaluation reports.

A MANDATE TO ENSURE SAFETY

The CNSC uses risk-informed regulatory approaches to plan and carry out licensing and compliance activities in order to establish appropriate regulatory requirements commensurate with the activities and the risk involved.

For facilities or activities where an accident could have severe consequences, the CNSC requires licensees to implement multiple layers of defence, in order to further minimize the likelihood of such an accident. That way, if a safety system or program fails, others are in place to keep the facility and workers safe and limit potential emissions. All major Canadian nuclear facilities are designed and operated with this “defence-in-depth” principle in mind.

The CNSC's strict oversight, which includes onsite inspections, ensures licensees are operating safely and adhering to their licence conditions.

A FOCUS ON SAFETY AND PREPAREDNESS

The NSCA requires all licensees to demonstrate to the CNSC that their workers and management are fully trained to carry out their duties competently. We also require all nuclear facilities to have comprehensive emergency programs. We work with nuclear operators, municipal, provincial and federal government agencies, first responders and international organizations so that we are ready to respond to a nuclear emergency at any time.

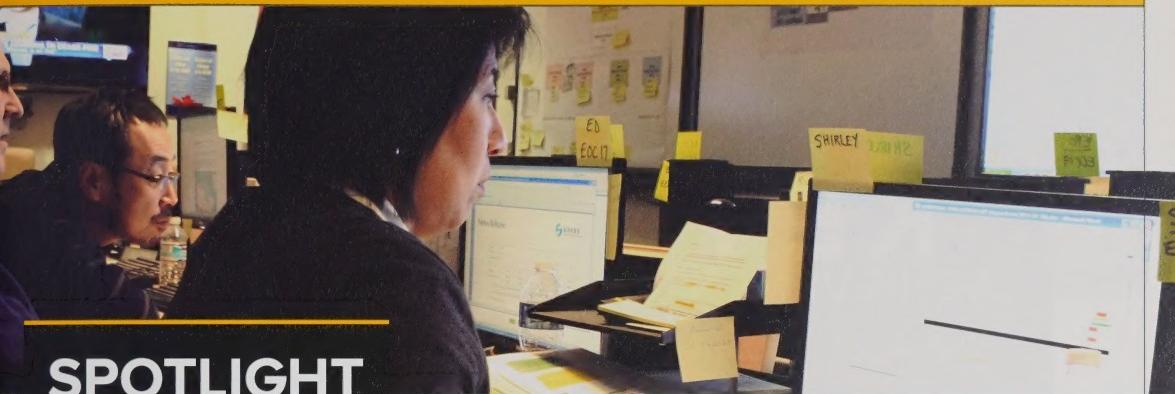
In the event of an emergency involving a nuclear facility or radioactive materials, the CNSC operates a full Emergency Operations Centre as part of the Government of Canada's response. The public and licensees can also call the CNSC Duty Officer, available 24 hours a day, to report actual or potential incidents. The Duty Officer will initiate prompt regulatory responses to ensure all appropriate measures are taken to protect people and the environment.

FOSTERING AN INTERNAL SAFETY CULTURE

The CNSC safety culture is derived from the organizational mission, programs and practices, along with employee and management actions and behaviours, which establish safety as an overriding priority. For the CNSC, this means embedding safety into everything we do and having the same focus on safety that we expect of our licensees.

Taking Pride in Our People

CNSC experts contribute their knowledge inside and outside of the workplace.



SPOTLIGHT

Photo Caption: CNSC staff hard at work at the Emergency Operations Centre, responding to the Fukushima Daiichi nuclear power plant accident in March 2011.

The CNSC takes pride in its employees, who demonstrate specialized expertise, dedication and professionalism every day. Roughly half of the CNSC's technical staff have doctorates or master's degrees in fields including nuclear engineering, chemistry, physics, environmental and radiation sciences, and epidemiology. Behind the scenes, these employees are hard at work undertaking technical assessments, analyzing data and establishing communication strategies to keep Canadians informed. CNSC staff were vital to the CNSC's response to TEPCO's Fukushima Daiichi nuclear accident in Japan – from supporting the Emergency Operations Centre to responding to international requests for assistance – and they continue to use their knowledge to ensure nuclear safety, both domestically and abroad.

The CNSC designates inspectors and makes sure they have the required skills, knowledge and training to do their jobs effectively. To be designated as an inspector requires completion of the CNSC's Inspector Training and Qualification Program.

CNSC employees are dedicated to promoting the organization's great work, here and abroad. Through career days, work fairs, and participation in domestic and international working groups, they take pride in their jobs and are the first to educate others the CNSC's role as Canada's nuclear regulator.

On top of that, most CNSC employees choose to take an active role in supporting their communities by volunteering for the Government of Canada Workplace Charitable Campaign (GCWCC). In 2011, the United Way Campaign Chair recognized the CNSC's success in exceeding its 2011 goal by a whopping 27 per cent – raising over \$225,000. Consequently, the CNSC was a finalist for the GCWCC Michael Nurse Award, which recognizes organizations whose creativity and enthusiasm drove a successful campaign.



Photo Caption: CNSC GCWCC Campaign Executive Champion Terry Jamieson, and Campaign Chair Gerry Frappier volunteer at the Ottawa Mission for the "Seeing is Believing" event.



KEY ACHIEVEMENTS

OUR EXPERTS HARD AT WORK

Photo Caption: TEPCO's Fukushima Daiichi nuclear power plant accident in Japan.

Last year, CNSC staff demonstrated they could respond to unexpected matters swiftly, effectively and with transparency, as shown by their actions following TEPCO's Fukushima Daiichi nuclear accident in Japan.

Much effort in 2011–12 focused on ensuring that the lessons learned from that accident further strengthened the safety of Canadian nuclear facilities. Our activities related to Fukushima are addressed throughout this report, as they represent some of our most important achievements over the past year.

Our staff continued to let their expertise, leadership and knowledge shine through their work under our Core + Four framework, which outlines our way of doing business and represents the cornerstone of our commitment to being the best nuclear regulator in the world.

Launched in 2009, the Core + Four is an overall framework to guide our work. It consolidates the CNSC's priorities under five headings: core, commitment to ongoing improvements, clarity of our requirements, capacity for action and communication. The CNSC has made significant headway this year of these each priority area.

CORE WORK

Active licensing work

The Commission held 19 public meetings and hearings, in which 284 intervenors participated, and conducted 20 abridged hearings.

A joint review panel is an independent body that is appointed to review and assess a project in an impartial and objective manner. In the case of nuclear-related projects, a joint review panel will conduct the environmental assessment and consider the licence application to prepare a site for a proposed project; both processes run concurrently. However, a licence decision cannot be made before the environmental assessment has been completed, with a conclusion that there would be no significant adverse environmental impacts as a result of the project and allowing it to proceed. The CNSC President and the federal Minister of the Environment develop project-specific agreements to facilitate such joint reviews.

Under the Government of Canada's *Responsible Resource Development* plan – which aims to create jobs, economic growth and long-term prosperity for all Canadians by streamlining the review of major resource projects – joint review panels are no longer required for projects regulated by the CNSC.

In October 2009, a three-member joint review panel (JRP) was established for the proposed Darlington New Nuclear Power Plant Project located at the existing Darlington nuclear site in the municipality of Clarington, Ontario. In August 2011, the JRP submitted its environmental assessment (EA) report to the federal Minister of the Environment. The report follows a review of the environmental impact statement prepared by Ontario Power Generation (OPG) and a 17-day public hearing held in March and April 2011. In early 2012, the Government of Canada announced its response to the recommendations made in the report and determined that the project is not likely to cause significant adverse environmental effects.

In January 2012, a three-member JRP was created to review OPG's proposed Deep Geologic Repository project to construct and operate a facility for the long-term management of low- and intermediate-level radioactive waste in Ontario. As of June 2012, the environmental impact statement was under a six-month public review that had originally been scheduled for August 3, 2012. However, this time period was extended to accommodate the time required for OPG to respond to information requests from the panel.

Rigorous oversight

In 2011–12, the CNSC carried out close to 2,000 inspections relative to the 3,300 licences held by just over 2,500 licensees. As well, 738 export licences (186 of which were issued for risk-significant radioactive sources) and 91 import licences were issued pursuant to the *Nuclear Non-Proliferation Import and Export Control Regulations*. In terms of regulatory actions, we issued 15 orders (usually for a licensee to cease using a nuclear-related device until it has complied with CNSC orders) to specific licensees using nuclear substances, issued two requests or notices to licensees and decertified one exposure device operator (EDO).

Key safety-related positions at nuclear facilities and facilities that use nuclear-related equipment must be occupied by personnel who have been certified by the CNSC as qualified, trained and capable of performing their duties. In the fiscal year the CNSC issued 43 new certifications and 26 renewals for personnel at nuclear reactor facilities and certified 132 new exposure device operators for a total of 201 personnel certifications. On March 31, 2012, there were 577 personnel certified at Class 1 Nuclear facilities, and 5,903 Exposure Device Operators who have been certified by the CNSC.

Regulatory efficiencies

The CNSC collaborates with foreign nuclear regulators to exchange knowledge and cooperate on technical issues; for example, it participates in the Multinational Design Evaluation Program (MDEP), which helps nuclear regulatory organizations in different countries share their standards for reviewing new reactor power plant designs. During the past year, through the MDEP, the CNSC helped reach agreements with international counterparts on common regulatory positions in many key technical areas, such as digital instrumentation and control.

The CNSC provides the optional service of a pre-licensing vendor design review in assessing a vendor's design for a nuclear power plant or small reactor. The review process, divided into three consecutive phases, is intended to be undertaken by a reactor vendor before an applicant submits a licence application to the CNSC. For further information regarding vendor design reviews, please visit our Web site at nuclearsafety.gc.ca.

The following vendors are in various phases of design reviews:

- | AECL, Advanced CANDU Reactor ACR-1000 design: Phase 3 completed in December 2012
- | AECL, EC 6 (Enhanced CANDU 6) design: Phase 2 completed in April 2012
- | Westinghouse, AP1000 design: Phase 1 completed, Phase 2 starting in summer 2012
- | Generation mPower, mPower: Phase 1 will be completed in mid-2013
- | ATMEA, ATMEA1 design: Phase 1 will be completed in mid-2013
- | NuScale, NuScale design: Phase 1 application received and planning in progress
- | AREVA, EPR design: Phase 1 currently on hold at the request of the vendor

Independent advice and expertise via our research program

The CNSC's research program provides staff with access to independent advice and expertise in support of its regulatory mission. The program also provides support to the development of national standards for safety, promotes international collaboration and knowledge sharing on best practices, and supports the dissemination of scientific information related to the CNSC's mandate.

Standards touch the lives of Canadians every day, affecting nearly every product or service they use, from the kettle in the kitchen to the lights overhead. Standards can range from safety and quality requirements to efficiency or environmental practices.

The Canadian Standards Association (CSA) is a membership association serving industry, government, consumers and other interested parties in Canada and the global marketplace. Many CSA energy standards are national standards in Canada and are cited in both federal and provincial regulations. In addition to providing energy standards, the CSA also helps to promote a safe and reliable nuclear power industry in Canada through the creation of specific nuclear industry standards.

In 2011–12, the CNSC continued to support the CSA's development of standards. For example, the public review phase was completed for the latest document in the CSA series related to environmental protection, *CSA N288.6 Environmental Risk Assessment at Class I Nuclear Facilities and Uranium Mines and Mills*. It is now undergoing final review.

In 2011–12, the research program spent a total of \$2.2 million on regulatory research to support virtually all aspects of the CNSC's mission. Among other areas, this research focused on assuring the continued safety

of the aging CANDU fleet, supporting recommendations made to the Darlington and Deep Geological Repository JRP, understanding tritium's environmental and health effects, participating in the Counter-Terrorism Research and Technology Initiative with Health Canada and other partners, and – for the first time – leading a project to detect illicit nuclear activity.

To ensure a continued supply of highly qualified people to support its mandate, the CNSC increased its support of the University Network of Excellence in Nuclear Engineering in its research and education mission. In the same vein, the CNSC worked in partnership with the National Science and Engineering Research Council, the Canadian Institutes of Health Research, and the Social Sciences and Humanities Research Council to establish a merit scholarship at the doctoral level to promote research in nuclear safety and security.

Meaningful public and Aboriginal participation

Since its launch in February 2011, the CNSC's Participant Funding Program has been opened six times, with \$194,029 awarded to 16 recipients to provide additional information to the Commission related to five re-licensing hearings and one ongoing EA. Successful applicants – Aboriginal groups, community groups and everyday citizens – all received funding in support of their interventions in regulatory matters related to nuclear facilities. Feedback from a recipient survey showed that the CNSC is on track with a program that was largely well-received and appreciated. For more information on the program, please see the spotlight on p. 48.

Also in 2011, the CNSC posted *Supplementary Information for Licensees: Aboriginal Consultation* on its Web site. This document offers advice to applicants and licensees on how to prepare for consultation with Aboriginal groups, in relation to a new licence application or an application to review an existing licence. It also encourages licensees to build relationships with Aboriginal groups, suggests that Aboriginal consultations take place throughout the life of a project and advises that such information may be used by the CNSC in its decision-making process.



THE PRIORITIES: OUR **4 Cs**



Photo Caption: Areva's McClean Lake uranium mine in the Athabasca Basin, Saskatchewan.

1 COMMITMENT TO ONGOING IMPROVEMENTS

The IAEA returned in 2011 to complete its follow-up assessment of Canada's nuclear regulatory framework. It determined that significant progress has been made against the recommendations and suggestions of the 2009 Integrated Regulatory Review Service (IRRS) mission report.

"The CNSC should be commended for the significant progress made in addressing the findings identified in the 2009 IRRS mission and for inviting this follow-up review."

– IRRS Team Leader Martin Virgilio,
Deputy Executive Director for Reactor and Preparedness Programs,
United States Nuclear Regulatory Commission

Opportunities identified through assessments such as the IRRS mission, audits, evaluations, and lessons learned are managed under a single corporate improvement plan. This plan integrates, aligns and prioritizes all CNSC improvement initiatives that under different organizational functions.

2 CLARITY OF REGULATORY REQUIREMENTS

The CNSC's regulatory framework consists of laws passed by Parliament that govern Canada's nuclear industry. It also includes regulations, licences and documents that the CNSC uses to oversee the nuclear activities and facilities in Canada. These documents fall into two broad categories: those that set out **requirements**, and those that provide **guidance** on requirements. The CNSC is committed to clarifying its regulatory requirements, and discussion papers are one of the ways it achieves this.

In 2011–12, the CNSC published its five-year Regulatory Framework Plan, which sets out the regulations and other regulatory framework documents that it intends to develop or amend in the coming years. Also, a number of new and/or amended regulatory documents were finalized during the year, in order to clarify regulatory requirements. For a complete list and short description of the projects completed this year, refer to Annex B on p. 80. The CNSC considers published regulatory and guidance documents to be living documents and welcomes feedback on them at any time. Both the Regulatory Framework Plan and a complete list of regulatory documents are available at nuclearsafety.gc.ca

Discussion papers play an important role in the selection and development of CNSC requirements or guidance. They are used to solicit early public feedback on CNSC policies or approaches. The use of discussion papers early in the regulatory process underlines the CNSC's commitment to a transparent consultation process.

In 2011–12, the following discussion papers were released for public consultation:

- | *Protection of Groundwater at Nuclear Facilities in Canada* (DIS-12-01)
- | *Process for Establishing Release Limits and Action Levels at Nuclear Facilities* (DIS-12-02)
- | *Fitness for Duty: Proposals for Strengthening Alcohol and Drug Policy, Programs and Testing* (DIS-12-03)

CAPACITY FOR ACTION

In 2012, the CNSC was once again named one of the National Capital Region's Top 25 Employers. We are proud of this achievement and continue to implement programs and activities to retain our highly talented workforce.

The CNSC also held workshops throughout Canada on the *Implementation of Financial Guarantees for Licensees* (DIS-11-01) discussion paper which was issued in March 2011. At these sessions, input was gathered from more than 1,000 stakeholders across Canada on the proposed program for putting financial guarantees in place for users of nuclear substances, prescribed equipment and Class II nuclear facility operators. In addition, two webinars were held for those who could not attend the workshops.



COMMUNICATIONS

Social media played a major role in informing the public of the tragic events that unfolded at the Fukushima Daiichi nuclear power plant in Japan, in March 2011. Given the importance of social media in public communications, the CNSC has been accelerating its adoption of social media tools to reinforce its online presence and to ensure timely access to safety information before or during a crisis. In February 2012, the CNSC launched its English and French Facebook pages, and it will continue to expand its use of social media tools, including YouTube.

Over the past year, the CNSC held many "CNSC 101" sessions, in which representatives visited Canadian communities and held informative seminars where they explained the CNSC's role and structure. They also answered questions on how the CNSC safely regulates Canada's nuclear industry. Five sessions were held this year across the country in Saint John, New Brunswick; Mississauga, Ontario; Yellowknife, Northwest Territories; Montreal, Quebec; and Calgary, Alberta. Feedback from the sessions has been positive to date. To view the schedule of upcoming CNSC 101 sessions and presentation materials, visit nuclearsafety.gc.ca.

The CNSC requires licensees and licence applicants to develop and implement public information programs that include a disclosure protocol, in order to establish an atmosphere of openness, transparency and trust with respect to their operations. To improve the public's level of understanding on information about proposed or licensed nuclear facilities and activities, as well as their potential impact on local communities, a new regulatory guidance document, *Public Information and Disclosure* (RD/GD-99.3), was developed and published.

Revisiting Fukushima, One Year Later



SPOTLIGHT

Photo Caption: Greg Rzentkowski (in white helmet), Director General of Power Reactor Regulation, takes a first-hand look at the emergency portable pumps purchased by Ontario Power Generation for its Darlington Nuclear Generating Station near Bowmanville, Ontario (May 2012). The new emergency equipment will further strengthen the operator's emergency preparedness.

The CNSC continues to focus on action and remains steadfast in working with its international counterparts to ensure the safe and secure operation of nuclear power plants at home and abroad.

Following the March 2011 accident at TEPCO's Fukushima Daiichi nuclear power plant (NPP), the CNSC immediately activated its Emergency Operations Centre to monitor the situation and to provide advice to the Government of Canada.

Shortly after that, the CNSC requested licensees of Canadian NPPs, research reactors and fuel fabrication facilities to review the lessons learned from the Fukushima Daiichi incident. The CNSC also inspected all NPPs and other nuclear facilities in Canada to assess the readiness of their mitigating systems, and launched a review of all major nuclear facilities in Canada.

The review, led by the CNSC Fukushima Task Force, confirmed that Canadian NPPs are robust and have a strong design that relies on multiple layers of defence. The design ensures there would be no impact on the public from external events regarded as credible, and it also offers protection against more severe external events that are much less likely to occur.

Nevertheless, the Task Force had several recommendations for strengthening each layer of defence built into the Canadian NPP design and licensing philosophy. These recommendations formed the basis for a solid action plan to further minimize risks at Canada's NPPs, and included measures to improve emergency preparedness and the Canadian nuclear regulatory framework. Full details of the plan can be found in the *CNSC Fukushima Task Force Report* (INFO-0824), which was posted on the CNSC's Web site in October 2011.

Both the Task Force Report and the action plan that was subsequently put in place went through several rounds of public consultation, as well as, two independent evaluations, which confirmed that the CNSC's response to the events in Fukushima was prompt, appropriate and comprehensive.

Internationally, CNSC staff have been taking a leadership role among their peers. In addition to participating in fora to share lessons learned, they have supported open dialogue and greater transparency within the international nuclear community.



INDEPENDENT INTERNATIONAL AND NATIONAL EVALUATIONS OF THE **CNSC'S** RESPONSE

The CNSC was the first national nuclear regulator to request a review of its response to TEPCO's Fukushima Daiichi accident by the International Atomic Energy Agency (IAEA). An Integrated Regulatory Review Service (IRRS) mission, which is an IAEA-sponsored peer review was conducted by nuclear regulatory experts from other member states.

The IRRS mission concluded that the CNSC's actions in response to the accident were prompt, robust and comprehensive, and identified them as good practice that should be used by other regulatory bodies. The international experts made two recommendations and one suggestion, which were all addressed in the CNSC's action plan in response to the events in Fukushima.

SECOND EXTRAORDINARY MEETING OF THE CONVENTION ON NUCLEAR SAFETY

This special meeting is planned to be held in August 2012 in Vienna, Austria. It seeks to find new ways for the international community to enhance nuclear safety through the review and exchange of lessons learned and actions taken in response to the Fukushima nuclear power plant accident.

Did you know? Canada was one of the first signatories of the *Convention on Nuclear Safety*, which was established to promote a high level of safety at nuclear power plants around the world. Canada is also one of the staunchest promoters and supporters of the Convention's objectives.

Furthermore, the CNSC President established an External Advisory Committee in August 2011 to assess the CNSC's processes and responses to the accident. The committee, made up of independent experts in energy, scientific innovation, engineering, governance and safety from outside of the nuclear sector, published its report in April 2012. It concluded the CNSC had responded promptly and appropriately, and also identified nine recommendations that complemented those of the CNSC Task Force. The recommendations were integrated with the CNSC's action plan.

For additional information about the Fukushima Daiichi nuclear accident and the CNSC's response, including the *Report of the External Advisory Committee*, visit the "CNSC Information Related to Japan Earthquake" page in the Media Centre at nuclearsafety.gc.ca

TIMELINE OF EVENTS AND ACTIONS TAKEN

DATE	EVENT
11 Mar 2011	A magnitude 9.0 earthquake near Japan generates an estimated 15-metre tsunami at the Fukushima Daiichi nuclear power plant
11 Mar 2011	CNSC activates Emergency Operations Centre
19 Apr 2011	CNSC creates multidisciplinary expert Task Force
7 July 2011	CNSC issues Safety Review Criteria – Canada’s “stress test” for nuclear power plants
5 Aug 2011	CNSC’s President forms External Advisory Committee
28 Oct 2011	Public consultation on Task Force Report and Management Response
21 Dec 2011	First public consultation on draft Action Plan on Task Force recommendations
2 Mar 2012	Second public consultation on draft Action Plan
5 Mar 2012	CNSC first nuclear regulator to receive IAEA evaluation of its response to the Japan nuclear accident
12 Apr 2012	External Advisory Committee delivers report to CNSC President Michael Binder
3 May 2012	The Commission holds public meeting to discuss the results of public consultations and the way forward on Action Plan
MOVING FORWARD...	
Aug 2012	Extraordinary Meeting of Convention on Nuclear Safety on Fukushima accident – culmination of extensive international peer-review exercise
Dec 2012	Deadline for short-term actions to be completed
April 2013	International Conference on Effective Nuclear Regulatory Systems in Ottawa, Canada
Dec 2013	Deadline for medium-term actions to be completed
Dec 2015	Deadline for long-term actions to be completed



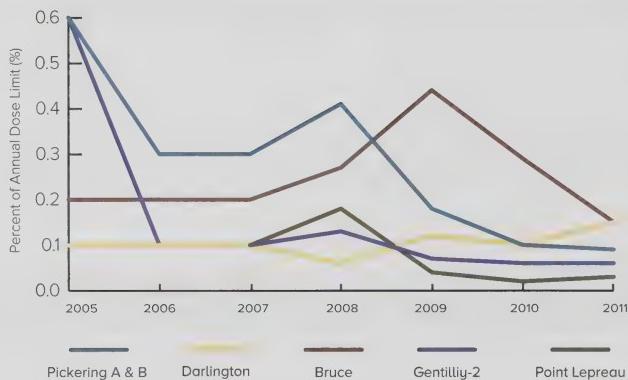
SAFE
ENVIRONMENT
PROTECTING THE ENVIRONMENT
TODAY AND FOR
FUTURE GENERATIONS

Photo Caption: CNSC inspector takes water samples.

SAFETY SUMMED UP

| Radiation doses to the public living around nuclear facilities remain far below regulatory dose limits (see figure 1).

Figure 1: Public doses around Canadian nuclear power plants as a percentage of annual public dose limit of 1 millisievert (mSv)



From 2005 to 2011, radiation doses to members of the public living near Canadian nuclear power plants were under one percent of the regulatory dose limit.

Note: The scale in the above figure represents only 1% of the annual public dose limit of 1 mSv.

Every year, the CNSC takes part in a wide range of environmental activities, including environmental assessments (EAs), which evaluate the risks and potential environmental footprint of proposed nuclear projects and how to minimize them. We also stringently monitor and evaluate our licensees against strict criteria to make sure they comply with environmental regulations and requirements. Last year, we completed 3 out of 22 active EAs, in order to understand how proposed nuclear-related projects could affect the environment and that any risks would be mitigated if the projects were to proceed.

The CNSC has established strict limits on the levels of radiation that the public can be exposed to, and on releases to the environment where nuclear substances are stored or where nuclear activities take place.

The CNSC works hard to make sure that nuclear activities in Canada will not harm people or the environment.

Quick facts on environmental assessments:

- | An EA is used as a planning tool and is conducted before a project is allowed to proceed. It helps predict, evaluate, and manage the environmental effects of a proposed project.
- | In accordance with the *Canadian Environmental Assessment Act* and its regulations, the CNSC oversees EAs to make sure nuclear projects are safe for the environment.
- | The CNSC's EA process is slightly different from EA processes at other federal departments and agencies because the Commission makes most EA decisions.
- | An EA provides opportunities for public and Aboriginal participation at several stages.

PROVIDING CANADIANS WITH INFORMATION

In September 2011, the CNSC held a public open house in Port Hope, Ontario, to inform the public on the process for the EA for the redevelopment of the Port Hope Conversion Facility (Vision 2010). The proposed Vision 2010 project includes the cleanup of contaminated soil, building materials and stored wastes from historic operations at the facility. An EA is being conducted to identify possible environmental effects, to propose measures to mitigate adverse effects, and to determine if there would be significant environmental

effects even after the mitigation measures are implemented. The CNSC open house included detailed posters about the proposed project, a CNSC staff presentation on the EA process, and opportunities for the public to speak with CNSC experts.

The CNSC also developed a set of Web pages about radiation, with the goal of providing the public with clear information about its mandate in an easy-to-understand format. The "Introduction to Radiation" pages (found in the Reading Room on the CNSC Web site) include definitions, an overview of the types and sources of radiation, potential health effects of radiation, and CNSC regulatory controls to protect the health and safety of workers and the public.

TAKING SWIFT ACTION

The CNSC licenses dosimetry services, which monitor worker radiation doses on behalf of licensees. In order to ensure that workers do not receive doses that exceed regulatory limits. In 2011, the CNSC discovered that doses to more than 1,700 workers had been underestimated by one dosimetry service provider. The CNSC reacted immediately to ensure that the doses were recalculated correctly, that the workers were notified of the corrections, that dose records were corrected in Health Canada's National Dose Registry, and that the errors committed by the dosimetry service would not be repeated.

IMPROVING THE CNSC LABORATORY

The CNSC continued to upgrade its laboratory infrastructure by acquiring new equipment and instruments for calibration and analytical services, in areas such as radiation protection, environmental protection, safeguards and emergency preparedness, which help support the CNSC's compliance programs.

The CNSC's newly acquired G-10 gamma irradiator represents one of the most significant recent additions to the laboratory. This state-of-the-art technology ensures accurate calibration of radiation detectors used by CNSC inspectors, to ensure the detectors are providing correct radiation readings.

Worker Protection Is a Top Priority

SPOTLIGHT

The CNSC and nuclear power plant operators are moving forward with more rigorous radiation protection programs after implementing significant changes to the way alpha radiation is monitored onsite.

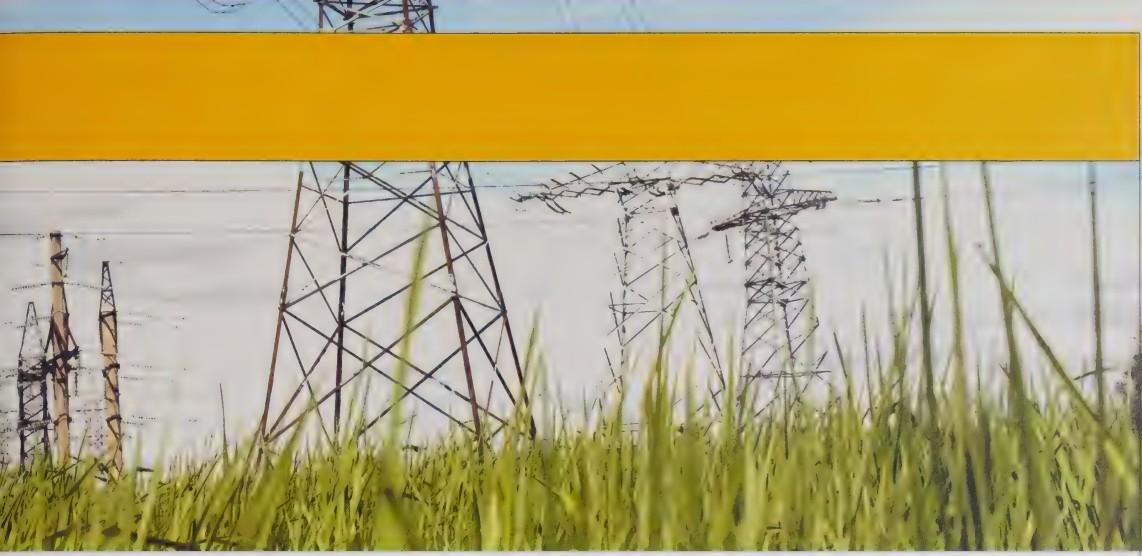
In November 2009, a routine survey during refurbishment operations at the Bruce A Nuclear Generating Station detected the presence of radioactive alpha contamination in the Unit 1 reactor vault.

During the subsequent investigation, it was determined that certain workers had been exposed to the alpha contaminants, both from the event and as a result of historical work activities. (Detailed worker dose information for 2009 is shown in figure 2.)

Given that worker safety is a top priority, the CNSC ordered all nuclear power plant operators in Canada to take immediate action to assess alpha hazards in their facilities and to improve their radiation protection programs related to alpha monitoring and control. A careful assessment of the individual doses for the 557 workers involved in the Bruce event indicated that no dose exceeded regulatory limits. No adverse health effects are expected for any of those involved.

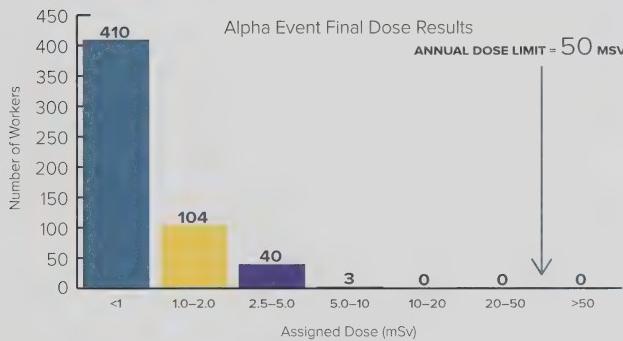
Learning from these events, the CNSC and Canada's plant operators have moved forward with enhanced regulatory oversight and radiation protection practices.

A careful assessment of the individual doses for the 557 workers involved in the Bruce event indicated that no dose exceeded regulatory limits. **No adverse health effects are expected for any of those involved.**



The CNSC has required each operator to develop a long-term action plan to prevent a similar event. The action plans cover 17 areas, including workplace surveillance, work planning, dosimetry, signage, personal protective equipment and training. To date, the operators have made significant progress in implementing their action plans and the CNSC is monitoring their progress closely through regular inspections and reviews.

Figure 2: Final dose results for workers at the Bruce A Unit 1 in 2009



Of the 557 affected workers: 410 workers received doses of less than 1.0 mSv, 104 workers received doses from 1.0 to 2.0 mSv, 40 workers received dose between 2.0 and 5.0 mSv, 3 workers received doses between 5.0 and 10 mSv, and 0 workers received doses greater than 10 mSv. No worker received a dose greater than the regulatory limit of 50 mSv.

The lessons learned from the incident have led to strengthened regulatory oversight and radiation protection requirements for all nuclear power plants in Canada.

SAFE URANIUM MINES AND MILLS

A NATURAL RESOURCE AS NUCLEAR FUEL

With the help of regional offices and full-time staff, the CNSC ensures that the health of workers, local residents and the surrounding environment at uranium mine and mill sites are protected.

Photo Caption: Cameco's McArthur River uranium mine in the Athabasca Basin, Saskatchewan.



SAFETY SUMMED UP

- | CNSC inspectors worked closely with provincial inspectors from the Saskatchewan ministries of labour and the environment to monitor licensees' occupational health and safety programs, including those for radiation protection. Personal dose records for operating mines and mills from 2006 to 2011 showed that radiation doses to workers were safe and well below regulatory limits.
- | During the reporting period, the number of reportable events remained stable at Canada's uranium mines and mills (23 in 2009, 20 in 2010 and 21 in 2011). Licensees are required to notify the CNSC of events or situations CNSC follows up to ensure the licensee has a plan in place to prevent such events from reoccurring.
- | In 2011–12, effluent discharges to the environment from uranium mining did not exceed regulatory limits.

Canada is the world's second largest uranium producer, accounting for 18 percent of global production. Ninety percent of Canada's production is exported. Raw ore from uranium mines is processed at a milling facility to extract uranium, and the uranium concentrate is then processed further to create fuel for nuclear power reactors.

The CNSC regulates and licenses all uranium mines and mills in Canada. Thanks to the country's longstanding experience in uranium mining, the health and safety of Canadians and their environment are well protected by stringent regulations and world-leading practices. These licensing requirements and practices have evolved over time to reflect changes in scientific knowledge as well as the public's expectations.

The CNSC conducts multiple inspections every year at all uranium mines and mills. These inspections ensure that radiation levels are kept well below regulatory limits, protect workers and the public from other potential hazards, and verify that all activities are environmentally responsible and safe. Handling and transport of uranium in Canada are also regulated by the CNSC.

This year, in its oversight role, the CNSC conducted inspections at all operating Canadian uranium mines and mills: Key Lake, Rabbit Lake and McArthur River, all located in Northern Saskatchewan. In addition, the McClean Lake Operation (in maintenance and care mode) and Cigar Lake (which is under construction) were inspected.

The CNSC also continued to review applications from three mining companies that have expressed interest in establishing new uranium projects: Strateco Resources for the Matoush Underground Exploration project (Quebec), AREVA Resources Canada for its Midwest (Saskatchewan) and Kiggavik (Nunavut) mining projects, and Cameco Corporation for the Millennium mine project (Saskatchewan).

HEALTH AND SAFETY OF URANIUM MINING INDUSTRY

Occupational health and safety is an important indicator of the uranium mining industry's performance. Inter-industry comparison statistics for lost-time incidents¹ over the past five years show uranium mining to be among the safest industrial occupations for workers in Saskatchewan (see Table 1 for more information).

Table 1: Inter-industry comparison of lost-time incidents in Saskatchewan from 2007 to 2011

Industry description	2007	2008	2009	2010	2011
Open-pit* mining (includes McClean Lake)	1.08	0.93	0.50	0.69	0.78
Underground soft rock mining	1.39	2.05	1.62	1.27	1.29
Underground hard rock mining	2.79	2.38	1.36	1.17	1.48
Construction trades	7.19	6.46	5.75	4.60	2.24
Automotive service shop towing	3.72	3.31	2.91	2.36	1.92
Operation of oil wells	1.21	0.73	0.97	0.76	0.75
Servicing of oil wells	3.74	3.78	2.98	3.82	1.87
Forestry operations	4.27	5.23	5.11	4.40	n/a
Refineries/upgraders	0.78	1.46	1.31	1.37	0.84
Machine shops	11.15	9.59	7.28	6.37	2.33
Government of Saskatchewan and ministries	3.02	3.05	3.23	3.13	1.39

Source: Saskatchewan Workers' Compensation Board – Statistical Supplement

* Uranium mines in Saskatchewan are classified as underground hard rock mines, although McClean Lake is an open-pit mine.

¹ When a worker becomes injured and loses time from work. Provincial workers' compensation boards compile LTI statistics for major industries as a conventional health and safety measure.

Storing Mill Tailings and Waste Rock Safely

SPOTLIGHT

Photo Caption: Gunnar tailings reclamation.

Mining operators are required to manage the radioactive waste from Canada's uranium mines and mills with care and in accordance with strict regulations.

The CNSC regulates and licenses all aspects of uranium mines and mills in Canada, and makes sure that uranium-mining companies take every precaution to achieve the highest levels of safety for workers, the general public and the environment. Licensees are required to comply with the many safety standards governing the management of waste rock and mill tailings.

Careful treatment of tailings, waste rock and clean rock

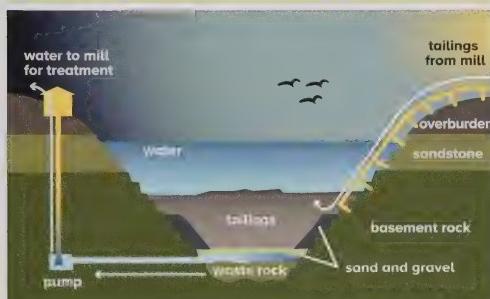
As part of their licence conditions, uranium-mining operators must manage mining and milling waste safely and securely; these conditions include making arrangements for long-term waste management to protect the health and the environment, both now and in the future. In the past year, the CNSC's current requirements were documented in the regulatory document *Management of Uranium Mine Waste Rock and Mill Tailings* (RD/GD-370) (see Annex B on p. 80 for more information).

Tailings from the uranium milling process are isolated, stored and monitored in tailings management facilities – such as tailing ponds or mined-out open pits – that are rigorously engineered for safe, long-term storage and stability (see Figure 3). These facilities ensure that groundwater and surface water are diverted (so that clean water does not become contaminated), using features such as man-made barriers to prevent contact between tailings and groundwater.

Waste rock is usually stored temporarily on the earth's surface in piles, which have collection systems for treating any water that runs off or filters through the pile. After mining, waste rock can be used as backfill in underground mines or placed in a mined-out pit. A modern practice is to develop a management strategy for waste rock that prevents it from posing a threat to the environment in the long term.

Clean rock that remains after mining is left in piles, and then contoured and re-vegetated. This rock can also be used in construction, as aggregate for concrete or for building roads, among other applications.

Figure 3: A typical design for in-pit tailings management



SAFE NUCLEAR PROCESSING AND RESEARCH

AN IMPORTANT PART OF CANADA'S NUCLEAR SECTOR

Uranium processing plants and research facilities that use nuclear energy are carefully regulated and licensed by the CNSC to protect Canadians and the environment.

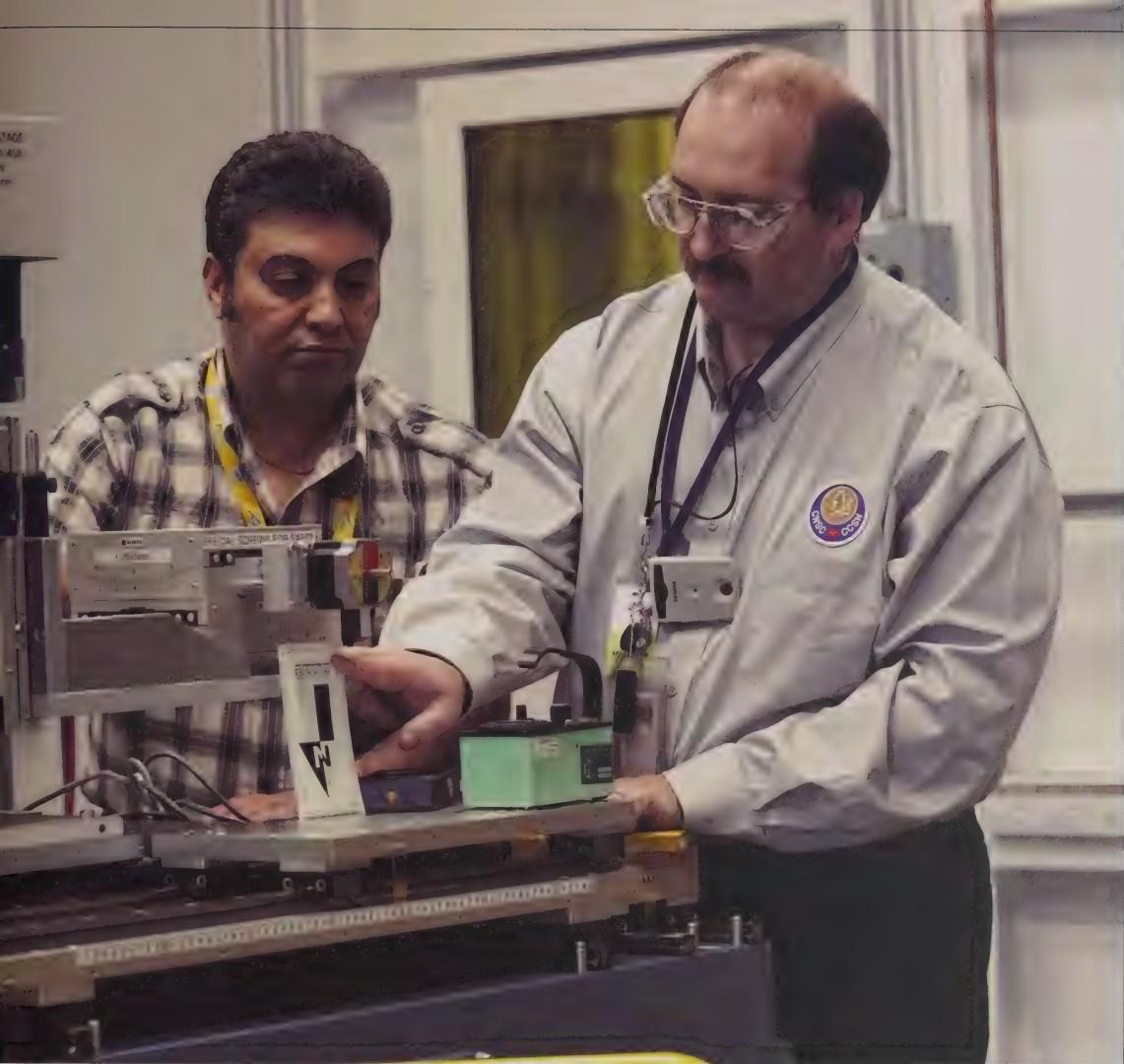


Photo Caption: A CNSC inspector at Canadian Light Source Inc, Canada's national synchrotron research facility.

SAFETY SUMMED UP

- | In 2011–12, there were no events with consequences to public health or the environment.
- | The annual safe radiation dose limit for members of the public is 1 millisievert (mSv). Radiation doses to the public continued to be well below regulatory limits (see figure 4).

Table 4: Public radiation doses as a percentage of regulatory limits for four major Canadian nuclear processing and research facilities

	2005	2006	2007	2008	2009	2010	2011
Chalk River Laboratories (AECL)	9.8	10.3	8.6	10.6	4.1	3.2	7.4
Cameco Port Hope Uranium Conversion Facilities	2.3	2.8	6.4	1.4	3.4	1.9	1.9
Cameco Blind River Uranium Refinery	1.2	1.2	2.4	3.6	0.1	0.6	0.6
Cameco Fuel Manufacturing Inc.	11.6	1.0	0.4	0.7	0.2	0.2	4.2

Radiation doses to members of the public, from Canadian nuclear processing and research facilities, were well below the regulatory limit of 1 mSv per year between 2005 and 2011.

Note: The scale in the above table represents only 20% of the 1 mSv annual public dose limit.

In 2011–12, the CNSC continued overseeing nuclear processing and research facilities to protect people who live and work near these facilities, and to protect the surrounding environment. From uranium processing facilities to research reactors and accelerators, nuclear-related processing and research plays an important role for many Canadians. For example, research reactors and accelerators are used in scientific research, training, materials testing and to produce radioisotopes for medical procedures.

In addition to the Chalk River Laboratories licence renewal (see spotlight on p. 25 for more information), the CNSC also held two-day public hearings on licence renewal applications from Cameco's three fuel cycle facilities in Ontario: the

Blind River Refinery, the Port Hope Conversion Facility and Cameco Fuel Manufacturing Inc. The CNSC held hearings in the community of Port Hope to accommodate interventions from members of the community.

The CNSC recognizes that most Canadian nuclear processing and research facilities emit small or negligible effluents to the environment, and takes a risk-informed approach to the licensing and inspection of these facilities.

The CNSC also imposed strict restrictions on Shield Source Inc. in Peterborough, Ontario, after it was discovered that its operations had exceeded the licence limit for tritium gas discharges. Processing operations will remain shutdown until the CNSC is satisfied the licensee has understood the causes and made changes to its operations, to prevent similar events from happening again.

Enabling Canada's Continued Nuclear Research Capabilities

A look at an innovative, comprehensive licence renewal.



SPOTLIGHT

Photo Caption: National Research Universal (NRU) reactor at the Atomic Energy of Canada Limited, Chalk River Ontario.

In 2011, following a two-day public hearing, the CNSC announced its decision to renew the operating licence of Atomic Energy of Canada Limited's Chalk River Laboratories (CRL) until October 31, 2016.

The Commission made its decision to renew the licence based on submissions from Atomic Energy of Canada Ltd. (AECL) and 14 intervenors, as well as recommendations from CNSC staff. CNSC staff spent more than 30,000 hours between 2008 and 2011 assessing more than 10,000 pages of AECL's supporting information.

Within the broader context of the CRL licence renewal, AECL undertook an integrated safety review (ISR) of the National Research Universal (NRU) reactor. The review is the first of its kind to be applied to a research reactor (in the past, ISRs were undertaken only for nuclear power plants) and gives greater assurance than ever that the NRU reactor is safe to operate. The review also incorporated lessons learned from the Fukushima Daiichi accident.

The ISR involved a comprehensive, systematic evaluation of the NRU's design, condition and operating programs and resulted in an Integrated Improvement Plan which details how the reactor must be improved both physically and operationally between now and 2021. The review also aimed to determine the extent to which the NRU conforms to modern standards, and identified improvements required to justify the reactor's continued safe operation for the next 10 years.

HELPING CANADIANS PARTICIPATE

Participant funding was made available to Canadians for the first time to help interested parties review and comment on AECL's licence application (for more information on the Participant Funding Program, see p. 48). Three funding applicants received financial assistance so they could fully participate in the regulatory decision-making process.

A complete record of proceedings and decision, as well as hearing transcripts, are available on the CNSC Web site at nuclearsafety.gc.ca, or upon request from the CNSC.

SAFE NUCLEAR POWER

SAFE OPERATION OF NUCLEAR REACTORS IN CANADA

The CNSC regulates all nuclear power plants (NPPs) in Canada. It carefully evaluates licence applications against strict criteria and only issues licences to those that are qualified. The CNSC also ensures licensees comply with requirements through verification, enforcement and mandatory reporting measures.

SAFETY SUMMED UP

Based on inspections and reviews conducted during the year, CNSC staff concluded that Canada's NPPs operated safely during 2011. This conclusion is based on the following observations:

- | There were no serious process failures at any NPP.
- | No member of the public received a radiation dose that exceeded the regulatory limits.
- | No plant worker received a radiation dose that exceeded the regulatory limits.
- | The frequency and severity of injuries/accidents involving workers were minimal.
- | No members of the public received a radiation dose that exceeded the regulatory limits.
- | No radiological releases from the stations exceeded regulatory limits.
- | All NPPs received either a satisfactory or fully satisfactory integrated plant rating.

SAFETY PERFORMANCE ASSESSMENT

The CNSC publishes a yearly report on the safety performance of NPPs. The report includes ratings for each of the 14 safety and control areas used at the CNSC to determine a station's overall performance, or integrated plant rating (IPR). The SCA ratings were either satisfactory or fully satisfactory for all

safety and control areas at every station. The 2011 ratings, along with industry averages, are presented in table 2.

The rating categories are “fully satisfactory” (FS), “satisfactory” (SA), “below expectations” (BE) and “unacceptable” (UA). As can be seen, the IPRs were either satisfactory or fully satisfactory for all stations.

Table 2: Safety performance ratings for Canadian nuclear power plants for 2011

Safety and control area	Bruce		Darlington	Pickering		Gentilly-2	Point Lepreau	Industry Average
	A	B		A	B			
Management system	SA	SA	SA	SA	SA	SA	SA	SA
Human performance management	SA	SA	SA	SA	SA	SA	SA	SA
Operating performance	SA	SA	FS	SA	SA	SA	SA	SA
Safety analysis	SA	SA	SA	SA	SA	SA	SA	SA
Physical design	SA	SA	SA	SA	SA	SA	SA	SA
Fitness for service	SA	SA	FS	SA	SA	SA	SA	SA
Radiation protection	SA	SA	FS	SA	SA	SA	SA	SA
Conventional health and safety	FS	FS	FS	SA	SA	SA	SA	SA
Environmental protection	SA	SA	SA	SA	SA	SA	SA	SA
Emergency management and fire protection	SA	SA	SA	SA	SA	SA	SA	SA
Waste management	SA	SA	SA	SA	SA	SA	SA	SA
Security	FS	FS	SA	SA	SA	SA	SA	SA
Safeguards	SA	SA	SA	SA	SA	SA	SA	SA
Packaging and transport	SA	SA	SA	SA	SA	SA	SA	SA
Integrated plant rating	SA	SA	FS	SA	SA	SA	SA	SA

REGULATORY MILESTONES AND HIGHLIGHTS

Pickering: final years of operation

The operating licences for Pickering A and B will expire in June 2013. In preparation for licence renewal, OPG has submitted a consolidated operating licence application for the two plants, which includes the continued operation plan. The CNSC requested this plan since OPG intends to shut down all units at Pickering A and Pickering B by the end of 2020.

Gentilly-2: licence renewed

The operating licence for Gentilly-2 was renewed this year and is now valid until June 30, 2016. If the station is not eventually refurbished, it will cease to operate and be placed in shutdown mode. The new licence combines power reactor operations and waste management for the first time.

Darlington: examining proposed refurbishment activities

The operating licence for Darlington will expire in February 2013. OPG has submitted a licence renewal application for Darlington, which is being reviewed by the CNSC staff. The Commission hearing for the licence renewal is planned for November 2012.

The facility's refurbishment and continued operation project is in the planning stages. OPG has submitted the integrated safety review documents, an environmental impact statement and other technical information in support of the project's EA. CNSC staff and other federal authorities are reviewing these documents. The Commission hearing for the EA for refurbishment is also planned for November 2012, as is the hearing for the renewal and expansion of the waste management facility.

Point Lepreau: new licence covering restart activities

The Commission renewed the operating licence for Point Lepreau for the period between February 2012 and June 2017. The refurbishment project for the plant progressed well in the last year. The CNSC authorized New Brunswick Power Nuclear to reload fuel in March 2012.



Photo Caption: A CNSC staff member inspects equipment for hydrogen management at the Bruce site. The devices, which do not require power to function, were recently installed as part of the short-term actions outlined in the CNSC action plan in response to the Fukushima Daiichi nuclear power plant accident.

Restart of Bruce (Units 1 and 2)

The operating licences for Bruce A and Bruce B will expire on October 31, 2014. The CNSC approved fuel reload for Bruce A's Unit 1 in November 2011 and the restart of Unit 2 in March 2012. Bruce Power's refurbishment of Units 1 and 2 at Bruce A is approaching completion.

Continuous improvement: power reactor operating licences

The CNSC is currently revising the format of NPP operating licences to introduce standard licence conditions for all 14 safety and control areas. Each new licence is supported by a licence conditions handbook that describes the compliance verification criteria required to confirm safe operation. It is expected that all NPP operating licences will be subject to the new format by October 2014.

Enhanced communication through Early Notification Reports

Power plant operators are required to notify the CNSC of significant events that occur in the course of their operations. CNSC staff will present an Early Notification Report (ENR) to the Commission given certain criteria – including exceedances of regulatory limits for releases, or public or media interest. The number of ENRs in a given year is not, in itself, an indicator of the safety of Canada's NPPs. For example, most events reported in 2011 were generally of little or no safety significance and only reported due to media or public interest. Table 3 presents the number of ENRs received by the CNSC between 2007 and 2011.

Table 3: Early Notification Reports for Canadian nuclear power plants from 2007 to 2011

2007	2008	2009	2010	2011
13	9	7	18	15

Ensuring the Safe Extension of the Operating Lives of Canadian Nuclear Power Plants

SPOTLIGHT

Photo Caption: Aerial photo of Bruce site.

The CNSC oversees all life extension projects for nuclear power plants (NPPs), which may involve the replacement or refurbishment of major components and substantial design modifications.

All NPPs in Canada are of the CANDU design. A CANDU reactor is a pressurized heavy water reactor that uses natural uranium as fuel and heavy water as a coolant and moderator. It has a design life of approximately 30 years, after which major equipment and systems need to be refurbished and modernized. Having been built between the 1960s and the early 1990s, many of Canada's NPPs have already undergone refurbishment or will within the next decade.

As part of the planning to refurbish a facility and extend its operating life, the CNSC requires the operator to conduct an environmental assessment to address the cumulative impact over the extended life cycle and an integrated safety review (ISR). An ISR provides a thorough examination of the plant's design, condition and operation, in an effort to align with current codes and standards. In keeping with the objective of the ISR, the operator must strive to modernize systems, structures and components to bring the safety of the facility to a level comparable to that of a modern NPP.

In order to return refurbished units to service, facility operators must obtain several approvals from the CNSC. Those approvals include reload of the reactor fuel, restart of the reactor and operation towards full power.

Life Extension of Nuclear Power Plants (RD-360), available on the CNSC Web site at nuclearsafety.gc.ca, provides more information about the requirements for NPP refurbishment in Canada.

Nuclear power by the numbers

NPPs have been commercially producing electricity in Canada since the 1960s. Today, 7 NPPs in 3 provinces house 22 nuclear power reactors, with 17 in commercial operation, which have the capacity to generate more than 12,600 megawatts of power. Nuclear energy contributes about 15 percent of our country's electricity and 50 to 60 percent of the electricity generated in Ontario.

SAFE NUCLEAR MEDICINE

DIAGNOSING AND TREATING DISEASES

The CNSC regulates medical uses of nuclear substances and radiation devices, ensuring that equipment and treatments are safe for Canadians.



Photo Caption: A cobalt storage pool

SAFETY SUMMED UP

- | The CNSC performed just over 200 inspections in the medical sector during 2011–12.
- | The CNSC made sure that two licensees (Regina Qu'Appelle Health Region and Health Canada's National Dosimetry Service) addressed serious non-compliance issues with respect to their licensed activities within the CNSC's specified timeframe.
- | There were 24 events reported in 2011, compared to 27 in 2008, 6 in 2009 and 18 in 2010. None of the events reported in the medical sector resulted in a radiation dose to the public in excess of regulatory limits.
- | Data from sampled annual compliance reports in the medical sector demonstrate that from 2008 to 2010, around 90 percent of all medical sector employees received low occupational doses: doses were less than 0.5 millisieverts per year, significantly below the regulatory limit of 50mSv for nuclear energy workers.

The use of radiation in the treatment of cancer has a long history in Canada, beginning with cobalt-60 treatments in 1951. Today, radiopharmaceuticals are used in many diagnostic and therapeutic procedures for diseases of the thyroid, treatment of certain blood disorders, and site-specific treatment of many cancers.

High-energy electrons or photon beams are widely used to treat a variety of cancers. Medical linear accelerators and high-dose-rate brachytherapy machines are examples of equipment used for radiation therapy.

The CNSC verifies that medical licensees conform with the NSCA, as well as other regulations and licence conditions, by conducting onsite inspections and desktop evaluations of licensee policies and procedures. The CNSC is also responsible for regulating medical accelerators and Class II nuclear facilities, which include hospitals, and prescribed equipment in Canada. As of March 2012, the Canadian medical sector held just over 580 licences, which represented around 20% of all CNSC licences.

The CNSC recently expanded its regulatory authority to include all particle accelerators operating at a beam energy level of 1 megaelectron-volt (MeV) or more. Previously, the CNSC had only regulated higher-energy accelerators with power levels above 10 MeV. The decision to include low-energy accelerators reflected recent developments in accelerator technology, and will ensure adequate and consistent oversight over this class of equipment. The CNSC informed all affected licensees and manufacturers of this change through extensive outreach efforts, along with written notification of the new policy.

The equipment used in the medical sector by CNSC licensees falls under a category known as "Class II prescribed equipment". Medical licensees also use radiation devices, which must be certified. All Class II prescribed equipment and certified radiation devices are subject to CNSC regulations, and a complete list is available at nuclearsafety.gc.ca

Licensing Innovative Technology in Support of Stronger Isotope Supply

SPOTLIGHT

The CNSC licenses facilities equipped with particle accelerators, including cyclotrons, to ensure their safe operation. Recently, Canadian cyclotrons were used in novel research that promises to lead to a more plentiful, diversified supply of medical isotopes.

Techneium-99m (Tc-99m) is the most widely used radioisotope in diagnostic nuclear medicine in Canada and around the world. Roughly 25,000 nuclear medicine scans for diagnosing illnesses are performed every week in Canada using this radioisotope, making Tc-99m an important and highly sought-after nuclear substance.

Tc-99m is typically produced by research reactors. The Government of Canada recently finalized agreements to invest in four projects to develop new ways of producing this key medical isotope. The two-year, \$35 million Non-reactor-based Isotope Supply Contribution Program is designed to advance cyclotron and linear accelerator technologies to achieve a more diverse and secure supply of Tc-99m, with less reliance on nuclear reactor-based production.

A team of Canadian scientists – researchers from TRIUMF, B.C. Cancer Agency, Lawson Health Research Institute (London, Ontario), and the Centre for Probe Development and Commercialization, McMaster University,

Techneium-99m (Tc-99m) is the most widely used radioisotope in diagnostic nuclear medicine in Canada and around the world.



Photo Caption: Cyclotron of the type used to conduct the research led by TRIUMF at the University of British Columbia to advance and diversify the production of Technetium-99m.

Hamilton, Ontario – recently produced Tc-99m using cyclotrons (a type of particle accelerator that is certified by the CNSC) in British Columbia and Ontario. This marked a significant accomplishment that will help assure a continued steady supply of this isotope, bringing good news to thousands of Canadians – and many others around the world – who benefit from procedures that use Tc-99m to diagnose cancer, heart and bone diseases.

Technetium-99m

Each year, 50 million nuclear medical body scans are performed around the world. Roughly 80 percent of these procedures use technetium-99m.

The use of a cyclotron, as opposed to a nuclear reactor, to produce medical isotopes has potential of an additional benefit: a reduction in waste. Since cyclotrons generate less long-lived waste than research reactors, they offer hope for a viable and sustainable alternative for producing Tc-99-m with minimal environmental impact. The CNSC is monitoring closely this type of work – which benefits Canadians' health while protecting the environment for current and future generations and – is committed to ensuring the continued safe operation of Canadian cyclotrons.

SAFE NUCLEAR SUBSTANCES AND TRANSPORT

NUCLEAR TECHNOLOGY CONTRIBUTES
TO EVERYDAY LIFE AND WELL-BEING

From licensing the possession of nuclear substances to overseeing the safe transport of nuclear material, the CNSC always ensures effective regulatory oversight of all uses of nuclear-related substances in industry, academia and the commercial sectors.



Photo Caption: A CNSC inspector takes a reading of a transportation container.

SAFETY SUMMED UP

- | The CNSC performed over 1,400 inspections in the academic, commercial and industrial sectors.
- | The CNSC issued 15 orders to licensees across the industrial/academic sector during the reporting period and 1 non-compliance request to Memorial University. The licensees complied with the orders in a timely fashion, and the CNSC confirmed that all the terms and conditions of the orders were met.
- | The CNSC issued 27 new certificates for radiation devices in 2011–12.
- | During 2011–12, the CNSC issued 47 certificates for package design and for special form radioactive material.
- | As of March 2012, the CNSC managed 113 industrial radiography licences.
- | Data from sampled annual compliance reports in the industrial, academic, research and commercial sectors demonstrate that, from 2008 to 2010, the vast majority of nuclear energy workers received less than the public dose limit of 1 millisievert per year. This is significantly less than the regulatory limit of 50 millisieverts per year for nuclear energy workers. Overall compliance in the safety and control areas assessed by inspectors improved in 2011.
- | Industrial radiography doses to certified exposure device operators averaged under 2 millisieverts per year.

Nuclear technology touches many aspects of everyday life. Nuclear technology is used in smoke detectors and photocopiers. It is used to scan baggage at airports, to check surface density in road construction, to authenticate and restore paintings and other artwork in museums, to irradiate silicon for hybrid car parts, in photocopiers, and to test airplane parts. While end-users of these devices do not require a licence, the manufacturing and distribution of the devices in Canada are licensed by the CNSC.

In **academia**, devices such as linear accelerators are used primarily for teaching and applied research, while nuclear substances are licensed for use in life science and health care research projects at a wide range of institutions across Canada.

Commercial uses of nuclear substances mainly involve fixed and portable gauges and exposure devices, used to ensure the integrity of pipelines and to analyze ground density. Servicing licences often include the installation and dismantling of radiation devices.

Industrial uses of nuclear substances include industrial radiography, in which high-radioactivity sealed sources are used to assess the integrity of

certain materials (a sealed source is a radioactive substance that is sealed in a container). Before an individual may possess, use or store these devices, he or she requires a licence issued by the CNSC. Radiographers who operate the devices must be certified by the CNSC.

As of March 2012, the industrial sector accounted for over 1,455 licences, the academic and research sector for 270 and the commercial sector for 583. The CNSC focuses its inspections where risk is highest and where it has concerns about the licensee's performance. The CNSC has a program in place to ensure that lost or stolen nuclear substances and radiation devices are tracked and recovered as soon as possible.

Canada is both a significant producer and major shipper of nuclear substances. The CNSC shares responsibility with Transport Canada for overseeing the transport of more than a million packages containing nuclear substances in Canada per year. The CNSC's role focuses on protecting the health, safety and security of people, and protecting the environment. While a small number of packages were involved in transport-related incidents, the overall safety record was excellent, with no damage to packaging or no impact to workers or the environment.

Photo Caption: A CNSC inspector examines a vehicle cargo container.



CNSC Team Responds Swiftly to MCP Altona Incident



SPOTLIGHT

Photo Caption: Sylvain Faille (back row, centre), accepts the 2012 Regulatory Excellence Award for Exceptional Performance in Compliance and Enforcement on behalf of the CNSC.

The CNSC is committed safe environmental remediation and effective enforcement of licence conditions.

For 15 weeks, CNSC staff conducted an onsite response to an incident involving the cleanup and removal of uranium concentrate (also called yellowcake) aboard the marine vessel *MCP Altona* in Vancouver.

On January 14, 2011, Cameco Corporation informed the CNSC that the vessel had sustained damage after it encountered extremely rough sea conditions on a trans-Pacific voyage. Several drums of uranium concentrate being transported onboard the vessel broke open during the voyage. As a result, the vessel was forced to return to Vancouver, where Cameco, the nuclear licensee responsible for the uranium concentrate, undertook the clean-up of the vessel cargo hold and recovery of the uranium.

The CNSC sent a response team to inspect the vessel offshore before it was determined that the licensee could safely undertake cleanup operations. CNSC involvement in this incident spanned a five-month period from January to May 2011. Hours of work were at times gruelling, and CNSC inspectors worked upwards of 16-hour days, seven days a week. As part of their duties, CNSC staff onsite verified radiation monitoring results and conducted their own measurements, including over 500 surface contamination wipes taken on the vessel, workers' equipment and clothing, and transport packages, prior to releasing the vessel. CNSC management also ensured efficient coordination between the geographically distant teams, as well as smooth interactions with other local and government organizations, such as WorkSafeBC and Transport Canada.

At the end of the cleanup work, CNSC staff reviewed Cameco's final radiation survey results and conducted their own independent measurements to confirm that no uranium concentrate was present on board the *MCP Altona*. Support from key radiation protection staff and the CNSC's new Limebank lab was invaluable. The vessel was released from CNSC regulatory control on May 5, 2011.

Thanks to the CNSC's multidisciplinary response team, onsite leadership, and dedication, and commitment to the various tasks, the CNSC was able to demonstrate successfully that this event presented no risk to the health and safety of workers, the public or the environment, and the vessel was allowed to return to its normal use.

The team won a Community of Federal Regulators 2012 Regulatory Excellence Award for Exceptional Performance in Compliance and Enforcement.

SAFE WASTE MANAGEMENT

SECURE STORAGE FOR FUTURE GENERATIONS

Radioactive waste in Canada is strictly regulated by the CNSC to ensure it poses no undue risks to people or the environment.

SAFETY

SUMMED UP

- | Doses to the public did not exceed regulatory limits.
- | Doses to workers at waste facilities did not exceed regulatory limits.
- | No regulatory releases from the waste facilities exceeded regulatory limits.

In 2011–12, we oversaw the management of several ongoing projects. Among the projects were those at the waste management facilities at Darlington and Pickering, as well as the Western Waste Management Facility, all operated by Ontario Power Generation (OPG), along with the decommissioning of AECL's Whiteshell Laboratories in Pinawa, Manitoba. In addition, we focused on some major proposed waste-related projects, including Cameco's Vision 2010 Port Hope decommissioning project, OPG's Deep Geological Repository for storing low- and intermediate-level waste, and the Adaptive Phased Management Project of the Nuclear Waste Management Office (NWMO), for managing high-level fuel waste.

The Government of Canada selected the NWMO's recommendation of adaptive phased management for the long-term care of used nuclear fuel. The CNSC met with stakeholders to share information about the project, including participation in the Commission hearing process, Aboriginal consultation, and the processes for the EA and project licensing. More information can be found in the spotlight on p. 48. The NWMO is planning to conclude this "expression of interest" phase of the site selection process on September 30, 2012.

PORT HOPE AREA INITIATIVE

The Port Hope Area Initiative is a federal project to clean up and safely provide for the management of low-level radioactive waste in the Port Hope and Clarington area. The initiative involves two separate projects: the Port Hope Project and the Port Granby Project.

The Port Hope Project involves the cleanup of contaminated sites in the Municipality of Port Hope and the storage and management of wastes in a new waste-management facility to be located there. The Port Hope project, having earlier completed the EA stage, was granted a waste nuclear substance licence in 2009, with conditions that had to be met before construction could begin. Licensing assessments are under way, and it is expected that a licence amendment hearing will be scheduled during the second half of 2012 to consider the construction of the waste management facility and remediation of contaminated sites.

The Port Granby Project is a proposal for the management of wastes currently in a radioactive waste-management facility in the Municipality of Clarington. The project has completed the EA phase and was granted a waste nuclear substance licence in 2011, allowing the project to proceed.

OTHER INITIATIVES

The Government of Canada's Nuclear Legacy Liabilities Program continues to provide a long-term strategy to manage legacy waste and contamination on AECL sites, including Chalk River Laboratories and Whiteshell Laboratories. The CNSC regulates all projects under this program.

The Whiteshell Laboratories facility is a former nuclear research and test establishment in Manitoba, on the east bank of the Winnipeg River. It is currently undergoing decommissioning in accordance with CNSC regulations.



Photo Caption: Image of a deep geological repository.

Inspiring Confidence in Communities Through Expertise and Commitment to Safety



SPOTLIGHT

Photo Caption: Representatives from the community of Wawa visited the CNSC's headquarters in Ottawa in 2011.

The CNSC reaches out as part of the Adaptive Phased Management project.

The CNSC gets involved early in proposed nuclear projects to ensure that Canadians understand our role in regulating Canada's nuclear sector. Several communities have participated in day-long presentations by the CNSC to learn about our part in the Adaptive Phased Management (APM) project of the Nuclear Waste Management Organization (NWMO).

APM is a process to find socially acceptable, technically sound, environmentally responsible and economically feasible solutions for the long-term management of used nuclear fuel. The CNSC has signed a service agreement with the NWMO to provide regulatory guidance and support for implementing APM.

As part of the agreement, the CNSC conducts pre-project design reviews of reports that the NWMO submits to the APM, about the proposed deep geological repository for the long-term management of used nuclear fuel. To conduct outreach and undertake reviews on the project, the CNSC has gathered a robust team of experts from various disciplines that include geology, hydrogeology, geomechanics, geochemistry, environmental and human risk assessment, and radiation protection.

In May 2010, as part of the APM approach, the NWMO launched a process to select a community willing to host a deep geological repository. As of March 2012, 15 communities had expressed interest and the CNSC has since met with 8 of them.

The exchange of information between communities and the CNSC has been lively and has touched on various issues, from the Commission hearing process to Aboriginal consultation and environmental assessments. Feedback from communities has been positive: they feel sure that the CNSC is a neutral, independent body, and are confident it has the right people to evaluate repositories for used nuclear fuel and who are concerned with safety first and foremost.

To learn more about the CNSC's early role in the APM project, visit nuclearsafety.gc.ca

NATIONAL SECURITY AND INTERNATIONAL COMMITMENTS

WE LEAD INTERNATIONALLY

Canada is a world leader in promoting the peaceful use of nuclear energy. To fulfill Canada's international obligations, the CNSC supports and implements our country's international agreements in the area of nuclear non-proliferation and security.



Photo Caption: In March 2012, Prime Minister Stephen Harper announced the expansion of efforts with the United States to return additional inventories of highly enriched uranium to the U.S. These inventories are currently safely and securely stored at the Atomic Energy of Canada Ltd.'s Chalk River Laboratories located north of Ottawa, Ontario, and are subject to the CNSC's strict regulatory oversight. Any transportation of these materials is also subject to rigorous regulatory controls.

INTERNATIONAL COOPERATION SUMMED UP

- | As of 2011–12, 27 nuclear cooperation agreements were in place between Canada and other countries, and more are on the horizon. The CNSC provides technical expertise to the Department of Foreign Affairs and International Trade in the negotiation of these agreements, and is responsible for implementing the agreements through administrative arrangements negotiated with its regulatory counterparts.
- | The CNSC also signed an amended administrative arrangement with Rosatom, its counterpart in the Russian Federation.
- | In 2011–12, the CNSC signed three new memoranda of understanding on regulatory cooperation with other countries, bringing the total to 11.
- | The CNSC signed three new bilateral administrative arrangements with its counterparts in Peru, Chile and Italy for the purpose of harmonizing regulatory controls on the import and export of radioactive sources, pursuant to the IAEA *Code of Conduct on the Safety and Security of Radioactive Sources*.



Photo Caption: CNSC President Michael Binder and Dr Chang Sun Kang, Chairman and Chief Regulatory Officer, Nuclear Safety and Security Commission of the Republic of Korea.

The major elements of Canada's nuclear non-proliferation policy involve international non-proliferation, safeguards and security commitments. Canada has been actively involved in international promotion of the peaceful use of nuclear energy.

COMMITMENTS

Treaty on the Non-proliferation of Nuclear Weapons:

Weapons: This treaty aims to prevent the spread of weapons, promote cooperation in the peaceful use of nuclear energy, and achieve nuclear disarmament. Canada was one of the first to sign this treaty in 1970. The CNSC makes sure that Canada complies with its obligations under this agreement.

Imports/exports: The CNSC works to ensure that Canada's nuclear exports are not used to develop any kind of nuclear weapon or explosive device. The CNSC also works hard to promote a stronger system for the safe use of nuclear substances internationally. In 2011–12, the CNSC issued 738 export and 91 import licences; 186 of these export licences were issued for risk-significant radioactive sources.

Nuclear safeguards: Safeguards are systems used by the IAEA to make sure that nuclear substances intended for peaceful purposes are not used instead to produce nuclear weapons. In 1972, Canada was the first country to bring in a broad safeguard agreement with the IAEA. In 2000, Canada added the "Additional Protocol", which gives the IAEA even more access to our activities.

In 2011, Canada once again received a positive safeguards conclusion from the IAEA, providing the highest possible level of assurance that all nuclear

material in Canada was used for peaceful activities. Canada is one of 58 countries, out of 178 member states, that received this result.

REGULATORY MILESTONES AND HIGHLIGHTS

Towards an information-driven safeguards system:

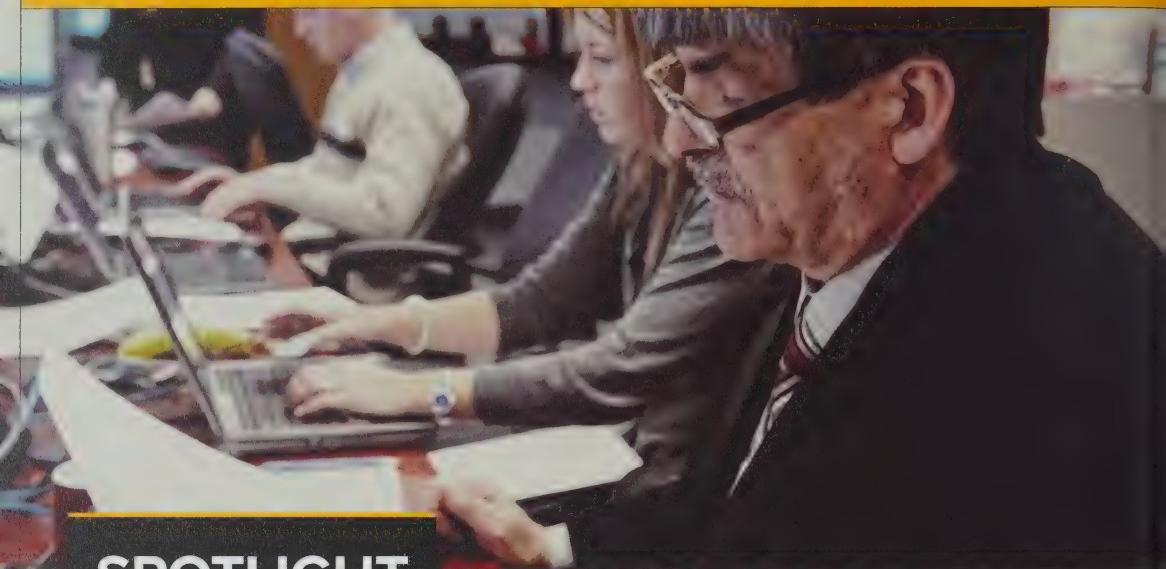
Over the course of 2011–12, the CNSC continued to work toward the streamlining of safeguards as implemented in Canada, by supporting the IAEA's evolution toward a safeguards system that is driven by comprehensive information analysis, rather than by prescriptive, rigid criteria. Canada has long been at the forefront of advocating this shift in thinking.

Transfer of used fuel: The CNSC, through its Canadian Safeguards Support Program, ensured the successful installation of equipment to monitor the transfer of CANDU spent fuel from wet to dry storage at the Point Lepreau Generating Station. With the completion of this installation, all Canadian CANDU facilities are now able to transfer spent fuel to dry storage without requiring the presence of an IAEA inspector.

A Canadian innovation to serve in Japan:

Another highlighted activity is the IAEA's approval of the Canadian/Swedish Digital Cerenkov Viewing Device as a partial defect identifier of spent fuel from light water reactors. This device will now be employed to verify spent fuel when it is transferred to TEPCO's Fukushima Daiichi nuclear generating station.

Testing Emergency Preparedness



SPOTLIGHT

Photo Caption: Regular emergency practice drills are conducted by nuclear power plant operators as well as municipal, provincial and federal agencies in charge of responding to nuclear incidents and accidents. On March 28, 2012, NB Power, operator of the Point Lepreau Generating Station, conducted a large-scale exercise. NB Power's Joe McCulley, Senior Health Physicist (far right), provides expertise in health physics during the exercise.

The CNSC regularly participates and evaluates exercises being carried out to test and validate emergency preparedness at major nuclear sites.

To ensure the safety of Canadians and the environment, the CNSC requires all major nuclear facilities in Canada to have comprehensive emergency management programs in place to deal with any incident that may occur at their sites. These plans must work cooperatively with the plans of other stakeholders, including the CNSC, provinces and municipalities, and other federal stakeholders.

In addition to their emergency plans and procedures, licensees must also maintain dedicated emergency response facilities and equipment, and an emergency response organization comprised of qualified and trained staff.

The CNSC requires nuclear facilities in Canada to conduct regular tests of their emergency management systems and response organizations. In 2011–12, all nuclear facilities in Canada met the CNSC's regulatory compliance expectations.

The role of the CNSC during a nuclear or radiological emergency is to:

- | monitor licensee responses
- | evaluate actions taken by emergency responders for safety and to maintain regulatory control
- | provide technical advice as required
- | take regulatory action, including issuing emergency orders, as required
- | provide field response assistance to local authorities, when requested or needed
- | keep the government and the public informed of the CNSC assessment of the situation.

As part of the PTP at Canadian high-security nuclear facilities, CATT members participate as adversary force members during exercises and drills at high-security nuclear sites. These exercises are evaluated, and the results of these evaluations serve as a means to continually develop and improve the physical protection at Canadian high-security nuclear facilities in order to meet regulatory requirements. There are currently 18 CATT volunteers from six nuclear response forces for high-security sites.

PERFORMANCE TESTING PROGRAM

The CNSC has completed the second cycle of its Performance Testing Program (PTP) at high-security nuclear facilities, including NPPs and AECL's Chalk River Laboratories. The PTP has proven to be an effective means of testing and validating that a licensee's physical protection systems are adequate and comply with performance and regulatory requirements.

The CNSC continues to utilize the Canadian Adversary Testing Team (CATT) during these performance testing exercises, to play the role of a credible adversary in safe, realistic and challenging scenarios.

With the conclusion of this second cycle of exercises, licensees have demonstrated they are addressing lessons learned from the performance testing security validation exercises, in order to enhance security.

The program will continue to evolve in order to ensure that testing remains current and relevant and that all aspects of the physical protection system (detection, delay and response) are realistically tested and assessed.

The CNSC will continue to consult industry stakeholders to ensure the program is administered efficiently and that its current collaborative effort remains in place to achieve program sustainability. The PTP will also continue to be benchmarked against other international programs.

STAKEHOLDER RELATIONS

REACHING OUT TO CANADIANS

CNSC staff travel from coast to coast, visiting Canadians in their communities and answering their questions on how we regulate nuclear safety. This ongoing dialogue is important for increasing public understanding and trust in our role of protecting Canadians, their health and the environment.



Photo Caption: CNSC outreach in the community (Mistissini, Quebec).

OUTREACH ACTIVITIES SUMMED UP

- | The CNSC's President, executive team and CNSC personnel continued to deliver presentations in such forums as the Canadian Nuclear Association, Parliamentary Standing Committees, international delegations, the Canadian Nuclear Law Organization, and the International Nuclear Regulators Association.
- | Close to 40 public presentations by CNSC experts and executives were made in Canada and abroad,
- | The CNSC proactively reached out to Canadians by issuing email notifications of important nuclear safety information to over 1,600 subscribers, and responded to hundreds of questions from the media, public and stakeholders.

The CNSC's stakeholder outreach this past year has been important. Beyond our usual outreach activities, we communicated extensively with Canadians during the course of TEPCO's Fukushima Daiichi nuclear accident in Japan, and throughout the months that followed. This resulted in an increased public interest throughout the country, related to the hearings in New Brunswick for the renewal of the Point Lepreau Generating Station licence. Canadians also responded to outreach efforts in northern Saskatchewan concerning the CNSC's oversight of mining operations, such as the Cameco Key Lake Extension Project. The CNSC also held many other community events, including several briefings about the CNSC's role in the Nuclear Waste Management Office's Adaptive Phase Management Project, which is working to find a host community for high-level nuclear waste.

CONSULTATION WITH ABORIGINAL PEOPLES

The CNSC consults with Canada's Aboriginal Peoples about some of its decisions, especially if a decision could affect Aboriginal People's rights. In such cases, CNSC staff make a point of involving Aboriginal peoples early on in the decision-making process.

In 2010, the CNSC set up the codification of current practices, an official list of the ways to consult with Aboriginal Peoples, demonstrating our commitment to effective, open and clear consultation. The CNSC also gives Aboriginal Peoples objective information about the nuclear industry's activities and its potential effects.

In 2011, CNSC staff participated in many community meetings, open houses, technical workshops and site visits with Aboriginal groups in Saskatchewan, Ontario, Nunavut and Northern Quebec.

Inviting Meaningful Public Input Through Participant Funding

SPOTLIGHT

The CNSC values the participation of Canadians, who bring valuable information to Commission deliberations.

In 2011, the CNSC launched its Participant Funding Program (PFP). This program was established to give the public, Aboriginal groups and other stakeholders the opportunity to request funding from the CNSC to participate in its regulatory processes. This program demonstrates the CNSC's continued commitment to meaningful public and Aboriginal participation in nuclear review processes, while strengthening regulatory performance and protecting the environment.

The PFP has the following objectives:

- | to enhance Aboriginal, public and stakeholder participation in the CNSC EA and licensing process
- | to help stakeholders bring value-added* information to the Commission, through informed and topic-specific interventions related to aspects of EAs and licensing.

The PFP is available to eligible stakeholders whose proposed activities are related to aspects of EAs and/or a licensing action for major nuclear facilities. Funding may also be available for CNSC proceedings that are of significant interest to the public or to Aboriginal groups.

Eligible recipients are individuals, community members, Aboriginal groups, not-for-profit corporations and other stakeholders who have:

- | a direct, local interest in the project, such as living or owning property near the project area
- | Aboriginal traditional knowledge and/or local community insight relevant to the proposed project
- | interests in potential project impacts on treaty lands, settlement lands or traditional territories and/or related claims and rights
- | plans to provide value-added information relevant to the CNSC's mandate and specific matters at Commission public proceedings.

The CNSC continues to adjust the PFP based on its experience with the program to date, drawing on input from both staff and participants.

* Value-added information is new, distinctive and relevant information that contributes to a better understanding of the anticipated effects of a project.

COMMISSION MEMBERS

INDEPENDENT AND
TRANSPARENT
DECISION MAKING

PERMANENT MEMBERS



Mr. Michael Binder

President and Chief Executive Officer, Canadian Nuclear Safety Commission Ottawa, Ontario

Named as a permanent member on January 15, 2008



Dr. Ronald J. Barriault

Physician, Restigouche Regional Health Authority Charlo, New Brunswick

Named as a permanent member on December 3, 2007



Mr. André Harvey

Québec City, Québec

Named as a permanent member on June 2, 2006



Dr. J. Moyra J. McDill

Professor, Department of Mechanical and Aerospace Engineering, Carleton University Ottawa, Ontario

Named as a permanent member on May 30, 2002



Mr. Dan Tolgyesi

President of Québec Mining Association Québec City, Québec

Named as a permanent member on May 30, 2008



Ms. Rumina Velshi

Toronto, Ontario

Named as a permanent member on December 15, 2011

TEMPORARY MEMBERS



Dr. James Archibald

Professor of mining engineering, Queen's University, Ontario

Temporary member, currently appointed to the Deep Geologic Repository for Low and Intermediate Level Radioactive Waste Joint Review Panel



Ms. Jocelyne Beaudet

Lunenburg, Nova Scotia

Temporary member, currently appointed to the Darlington Joint Review Panel



Mr. Alan R. Graham

Rexton, New Brunswick

Temporary member, currently Chair of the Darlington Joint Review Panel



Dr. Gunter Muecke

Professional geologist

Temporary member, currently appointed to the Deep Geologic Repository for Low and Intermediate Level Radioactive Waste Joint Review Panel



Mr. Ken Pereira

Ottawa, Ontario

Temporary member, currently appointed to the Darlington Joint Review Panel



Dr. Stella Swanson

Environmental consultant

Temporary member, currently Chair of the Deep Geologic Repository for Low and Intermediate Level Radioactive Waste Joint Review Panel

The Commission is a quasi-judicial administrative tribunal. The Commission makes independent, fair and transparent decisions on the licensing of major nuclear-related activities. It also makes legally binding regulations and sets regulatory policy direction on matters related to the protection of health, safety, security and the environment and to the implementation of international obligations respecting peaceful uses of nuclear energy.

Before the Commission decides whether to license a nuclear-related activity, it considers applicants' proposals, recommendations from CNSC personnel, and stakeholder views. Each licensing decision is based on information that demonstrates the operation of a given facility can be carried out safely and that the environment is protected. To promote openness and transparency, the Commission conducts its business where possible in public hearings and meetings and, where appropriate, in communities affected by its decisions. Aboriginal people and other members of the public can participate in public hearings via written submissions and oral presentations. Commission hearings and meetings can be viewed online as webcasts at nuclearsafety.gc.ca, where transcripts of public hearings and meetings are also available after the proceedings.

The Commission has up to seven permanent members, appointed by the Governor in Council and chosen according to credentials. All are independent of political, governmental, special interest group or industry influences. Temporary members can be appointed by the Governor in Council when necessary. The CNSC President is the only full-time Commission member.

In 2000, the *Nuclear Safety and Control Act* came into force, superseding the *Atomic Energy Control Act* and marking the transition to a stronger Canadian regulatory regime. The new Act marked the first major update of Canada's nuclear regulatory regime since the AECB was established in 1946.

MANAGEMENT DISCUSSION

CANADIAN NUCLEAR SAFETY COMMISSION MANAGEMENT DISCUSSION AND ANALYSIS OF THE STATEMENT OF OPERATIONS FOR THE YEAR ENDED MARCH 31, 2012

The Canadian Nuclear Safety Commission (CNSC) prepares, on an annual basis, a full set of audited financial statements as required under the CNSC Cost Recovery Fees Regulations (CRFR). Included in the audited Statement of Operations is information on the planned results for the current fiscal year as set out in the Future-Oriented Statement of Operations (FOSO) published with the 2011–2012 Report on Plans and Priorities.

The purpose of the CNSC Management Discussion and Analysis (MDA) is to provide the financial statement reader with information on significant variances between the planned results and the actual results for the operations of the 2011–12 fiscal year, as well as between the actual results for the 2011–12 and the 2010–11 fiscal years' operations. The discussion and analysis generally proceeds in the order that the expenditures and revenues appear in the Statement of Operations.

The first significant variances arise between the planned and actual Salaries and employee benefits and the Licence fees for the 2011–12 fiscal year were due to an assumption made in the preparation of the FOSO with respect to the loss of temporary incremental funding. The loss of the temporary incremental funding, for activities associated with fee-exempt licensees and non-cost recoverable, would have required the CNSC to reduce employee levels and begin to charge fees to licensees who provide a public good or service, including hospitals and higher education institutions. In the Budget 2012, the government confirmed its commitment to providing fee-exempt services to certain licensees and non-cost-recoverable international activities.

Professional and special services increased significantly for the current and prior fiscal year and against the planned expenditure level for 2012.

This variance is due to the transfer of information technology (IT) infrastructure responsibilities to the newly created Shared Services Canada (SSC). The CNSC pays SSC for the infrastructure services received and records the charge under Professional and special services. Prior to the 2011–12 fiscal year, the CNSC met its IT infrastructure needs internally through salaried employees.

The CNSC meets its office space requirements through a combination of Services without charge from Public Works and Government Services Canada and partial lease payments from revenues. During the current fiscal year, the CNSC negotiated a lease renewal, which resulted in an increase in the cost of accommodations and in the proportion of lease payments from revenues to 34% from 22% of total accommodation costs.

For furniture, repairs and rentals and communication and information the CNSC experienced a decrease in actual expenditures against the planned results as well as against the prior fiscal year. The planned results reflected estimates for the cost of completing the realignment of offices, including furniture and equipment, a multi-year project begun in the 2009–10 fiscal year, at the CNSC's headquarters' building that were higher than the actual cost of replacing desktop informatics equipment. It should be noted that while the costs of furniture and communication equipment are expensed in accordance with the CNSC's accounting policies, the realignment project included a significant capitalized leasehold improvement asset component. The completion of the realignment project and commencement of amortization of the resulting asset in the 2011–12 fiscal year is reflected in the significant increase in the actual amortization expense in comparison to both the planned and prior year's expense.

The CNSC Program provides funds through its Grants and Contributions program to public institutions on a variety of nuclear research subjects and in the current year implemented the new Participant Funding Program (PFP). The PFP was established to give the public, Aboriginal groups and other stakeholders the opportunity to request funding from the CNSC to participate in its regulatory processes. The CNSC actively promotes the availability of these funds and reflects the importance of this program by planning for the full disbursement of all funds. While the CNSC experienced a significant increase in the requests received in the current year against the prior year, the goal set out in the planned results was not achieved.

Finally, the variance between the planned and actual results for the special projects revenues reflects the increase in special project activity resulting from the announcement by the Province of Ontario in the summer of 2011 of its intention to pursue nuclear options in its long-term electricity strategy.

CNSC MANAGEMENT TEAM



Terry
Jamieson
*Vice-President,
Technical
Support*

Jacques
Lavoie
*Senior General
Counsel and
Director of
Legal Services*

Michel
Cavallin
*Vice-President,
Corporate
Services, and Chief
Financial Officer*

Michael
Binder
*President and
Chief Executive
Officer*

Gordon White
*Vice-President,
Regulatory Affairs,
and Chief
Communications
Officer*

Marc Leblanc
*Commission
Secretary*

Ramzi
Jammal
*Executive
Vice-President,
Regulatory
Operations, and
Chief Regulatory
Operations Officer*

FINANCIAL STATEMENTS

CANADIAN NUCLEAR SAFETY COMMISSION

Statement of Management Responsibility Including Internal Control Over Financial Reporting

Responsibility for the integrity and objectivity of the accompanying financial statements for the year ended March 31, 2012, and all information contained in these statements, rests with the management of the Canadian Nuclear Safety Commission (CNSC). These financial statements have been prepared by management using the Government's accounting policies, which are based on Canadian public sector accounting standards.

Management is responsible for the integrity and objectivity of the information in these financial statements. Some of the information in the financial statements is based on management's best estimates and judgment, and gives due consideration to materiality. To fulfill its accounting and reporting responsibilities, management maintains a set of accounts that provides a centralized record of the CNSC's financial transactions. Financial information submitted in the preparation of the *Public Accounts of Canada*, and included in the CNSC's *Departmental Performance Report*, is consistent with these financial statements.

Management is also responsible for maintaining an effective system of internal control over financial reporting (ICFR), designed to provide reasonable assurance that financial information is reliable, that assets are safeguarded and that transactions are properly authorized and recorded in accordance with the *Financial Administration Act*, as well as CNSC policies, authorities and statutory requirements, including the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*.

Management seeks to ensure the objectivity and integrity of data in its financial statements through careful selection, training and development of qualified staff; through organizational arrangements that provide appropriate divisions of responsibility; through communication programs aimed at ensuring that regulations, policies, standards and managerial authorities are understood throughout the CNSC; and through conducting an annual risk-based assessment of the effectiveness of the system of ICFR.

The system of ICFR is designed to mitigate the risks to a reasonable level, based on an ongoing process to identify key risks, to assess effectiveness of associated key controls, and to make any necessary adjustments. A risk-based assessment of the system of ICFR for the year ended March 31, 2012, was completed in accordance with the Treasury Board *Policy on Internal Control*, and the results and action plans are summarized in the annex.

The effectiveness and adequacy of the CNSC's system of internal control is reviewed by the work of internal audit staff, who conduct periodic audits of different areas of the CNSC's operations, and by the Departmental Audit Committee, which oversees management's responsibilities for maintaining adequate control systems and the quality of financial reporting, and which recommends the financial statements to the President.

The Office of the Auditor General – the independent auditor for the Government of Canada – has expressed an opinion on the fair presentation of the financial statements of the CNSC, which does not include an audit opinion on the annual assessment of the effectiveness of the CNSC's internal controls over financial reporting. The Office of the Auditor General also audited, at the specific request of the CNSC, and expressed an opinion on the CNSC's compliance with the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*.



Michael Binder
President

Ottawa, Canada
July 10, 2012



Michel Cavallin
Vice-President, Corporate Services Branch and
Chief Financial Officer

AUDITOR'S REPORT



Auditor General of Canada
Vérificateur général du Canada

INDEPENDENT AUDITOR'S REPORT

To the Canadian Nuclear Safety Commission and the Minister of Natural Resources

Report on the Financial Statements

I have audited the accompanying financial statements of the Canadian Nuclear Safety Commission, which comprise the statement of financial position as at 31 March 2012, and the statement of operations and net financial position, statement of change in net debt and statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not

for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Opinion

In my opinion, the financial statements present fairly, in all material respects, the financial position of the Canadian Nuclear Safety Commission as at 31 March 2012, and the results of its operations, changes in its net debt, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Report on Other Legal and Regulatory Requirements

In my opinion, the Canadian Nuclear Safety Commission has complied, in all significant respects, with the *Canadian Nuclear Safety Commission Cost Recovery Fee Regulations* pursuant to the *Nuclear Safety and Control Act*.

Lissa Lamarche, CA
Principal
for the Auditor General of Canada

10 July 2012
Ottawa, Canada

STATEMENT OF FINANCIAL POSITION

As at March 31

(in dollars)

	2012	2011
		Restated (note 17)
LIABILITIES		
Accounts payable and accrued liabilities (note 4)	\$ 27,021,105	\$ 27,058,051
Vacation pay and compensatory leave	6,173,158	5,967,777
Deferred revenue (note 5)	2,269,751	2,434,962
Employee future benefits (note 6b)	17,622,455	18,446,796
Asset retirement obligation (note 7)	259,464	235,133
TOTAL LIABILITIES	53,345,933	54,142,719
FINANCIAL ASSETS		
Due from the Consolidated Revenue Fund	27,021,105	27,058,051
Accounts receivable (note 8)	1,796,012	2,011,066
TOTAL FINANCIAL ASSETS	28,817,117	29,069,117
NET DEBT	24,528,816	25,073,602
NON-FINANCIAL ASSETS		
Prepaid expenses	270,128	104,335
Tangible capital assets (note 9)	15,443,776	17,315,687
TOTAL NON-FINANCIAL ASSETS	15,713,904	17,420,022
NET FINANCIAL POSITION	\$ (8,814,912)	\$ (7,653,580)
Contractual obligations (note 13) and contingent liabilities (note 14) The accompanying notes form an integral part of these financial statements.		

Michael Binder
PresidentOttawa, Canada
July 10, 2012Michel Cavallin
Vice-President, Corporate Services Branch and
Chief Financial Officer

STATEMENT OF OPERATIONS AND NET FINANCIAL POSITION

For the Year Ended March 31

(in dollars)

	2012 Planned Results	2012	2011
			Restated (note 17)
EXPENSES			
Salaries and employee benefits	\$ 101,453,000	\$ 108,416,158	\$ 107,727,365
Professional and special services	14,600,000	15,935,803	14,894,368
Accommodation	8,768,000	8,643,133	7,997,776
Travel and relocation	5,207,000	4,416,192	4,512,758
Amortization	3,249,000	3,858,857	2,823,939
Furniture, repairs and rentals	4,534,000	3,362,671	5,018,843
Communication and information	3,111,000	1,711,820	2,234,590
Grants and contributions	1,770,000	1,163,015	694,752
Utilities, materials and supplies	735,000	978,699	961,988
Other	55,000	283,860	81,244
TOTAL EXPENSES (NOTE 10)	143,482,000	148,770,208	146,947,623
REVENUES			
Licence fees	110,041,000	101,745,602	99,110,130
Special projects	1,000,000	2,932,750	1,626,272
Other	14,000	15,019	37,118
TOTAL REVENUES (NOTE 10)	111,055,000	104,693,371	100,773,520
NET COST OF OPERATIONS BEFORE GOVERNMENT FUNDING AND TRANSFERS	32,427,000	44,076,837	46,174,103
GOVERNMENT FUNDING AND TRANSFERS			
Net cash provided by Government		31,158,128	29,072,957
Change in due from Consolidated Revenue Fund		(36,946)	431,797
Services provided without charge by other government departments (note 11a)		13,250,806	13,520,324
Transfer of assets and liabilities to other government department (note 12)		(1,456,483)	—
Net cost of operations after government funding and transfers	1,161,332	3,149,025	
NET FINANCIAL POSITION – BEGINNING OF YEAR		(7,653,580)	(4,504,555)
NET FINANCIAL POSITION – END OF YEAR	\$ (8,814,912)	\$ (7,653,580)	
Segmented information (note 10)			
The accompanying notes form an integral part of these financial statements.			

STATEMENT OF CHANGE IN NET DEBT

For the Year Ended March 31

(in dollars)

	2012	2011
NET COST OF OPERATIONS AFTER GOVERNMENT FUNDING AND TRANSFERS	\$ 1,161,332	\$ 3,149,025
CHANGE DUE TO TANGIBLE CAPITAL ASSETS		
Acquisition of tangible capital assets (note 9)	3,744,370	7,617,963
Amortization of tangible capital assets (note 9)	(3,858,857)	(2,823,939)
Proceeds from disposal of tangible capital assets	(71,191)	(34,038)
Net (loss) gain on disposal of tangible capital assets	(39,162)	11,498
Transfer of assets to other government department (note 12)	(1,647,071)	—
TOTAL CHANGE DUE TO TANGIBLE CAPITAL ASSETS	(1,871,911)	4,771,484
CHANGE DUE TO PREPAID EXPENSES		
Balance at beginning of year	104,335	123,062
Expense for the year	(208,670)	(246,124)
Prepaid expenses for future years	270,128	104,335
TOTAL CHANGE DUE TO PREPAID EXPENSES	165,793	(18,727)
NET INCREASE (DECREASE) IN NET DEBT	(544,786)	7,901,782
NET DEBT – BEGINNING OF YEAR	25,073,602	17,171,820
NET DEBT – END OF YEAR	\$ 24,528,816	\$ 25,073,602

The accompanying notes form an integral part of these financial statements.

STATEMENT OF CASH FLOWS

For the Year Ended March 31

(in dollars)

	2012	2011
	Restated (note 17)	
OPERATING ACTIVITIES		
Net cost of operations before government funding and transfers	\$ 44,076,837	\$ 46,174,103
NON-CASH ITEMS:		
Amortization of tangible capital assets (note 9)	(3,858,857)	(2,823,939)
Gain (loss) on disposal of tangible capital assets	(39,162)	11,498
Services provided without charge by other government departments (note 11a)	(13,250,806)	(13,520,324)
VARIATIONS IN STATEMENT OF FINANCIAL POSITION:		
Decrease in accounts receivable	(215,054)	(4,695,795)
Increase (decrease) in prepaid expenses	165,793	(18,727)
Decrease (increase) in accounts payable and accrued liabilities	36,946	(431,797)
Increase in vacation pay and compensatory leave	(205,381)	(561,902)
Decrease (increase) in deferred revenue	165,211	(760,296)
Decrease (increase) in employee future benefits	633,753	(1,648,656)
Increase in asset retirement obligation	(24,331)	(235,133)
CASH USED IN OPERATING ACTIVITIES	27,484,949	21,489,032
CAPITAL INVESTING ACTIVITIES		
Acquisitions of tangible capital assets (note 9)	3,744,370	7,617,963
Proceeds from disposal of tangible capital assets	(71,191)	(34,038)
CASH USED IN CAPITAL INVESTING ACTIVITIES	3,673,179	7,583,925
NET CASH PROVIDED BY GOVERNMENT OF CANADA	\$ 31,158,128	\$ 29,072,957
The accompanying notes form an integral part of these financial statements.		

NOTES TO THE FINANCIAL STATEMENTS

1. Authority and Objectives

The Canadian Nuclear Safety Commission (CNSC) was established in 1946 by the *Atomic Energy Control Act*. Prior to May 31, 2000, when the federal *Nuclear Safety and Control Act* (NSCA) came into effect, the CNSC was known as the Atomic Energy Control Board (AECB). The CNSC is a departmental corporation listed in Schedule II of the *Financial Administration Act*, and reports to Parliament through the Minister of Natural Resources.

The NSCA provides comprehensive powers to the CNSC to establish and enforce national standards for nuclear energy, in the areas of health, safety and environment. It establishes a basis for implementing Canadian policy and fulfilling Canada's obligations with respect to the non-proliferation of nuclear weapons. The CNSC is empowered to require financial guarantees, order remedial action in hazardous situations, and require responsible parties to bear the costs of decontamination and other remedial measures.

The CNSC's objectives are to:

- | regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and information, in order to: a) prevent unreasonable risk to the environment, to the health and safety of persons and to national security; and b) achieve conformity with measures of control and international obligations to which Canada has agreed; and
- | disseminate scientific, technical and regulatory information concerning: a) the activities of the CNSC; b) the development, production, possession, transport and use of nuclear energy and substances; and c) the effects of nuclear energy and substances use on the environment and on the health and safety of persons.

The CNSC also administers the *Nuclear Liability Act*, including designating nuclear installations and prescribing basic insurance to be carried by the operators of such nuclear installations, and the administration of supplementary insurance coverage premiums for these installations.

Pursuant to the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*, the CNSC recovers costs related to its regulatory activities from users licensed under the NSCA. These costs include the technical assessment of licence applications, compliance inspections and the development of licence standards.

2. Summary of Significant Accounting Policies

These financial statements have been prepared using the Government's accounting policies, as stated below, which are based on Canadian public sector accounting standards. The presentation and results using the stated accounting policies do not result in any significant differences from Canadian public sector accounting standards.

The significant accounting policies are as follows:

a) Parliamentary authorities and revenue spending authority

The CNSC is financed by the Government of Canada through Parliamentary and statutory authorities. Included in the statutory appropriation is a responsible revenue authority which allows the CNSC to spend licence fee revenue. Financial reporting of authorities provided to the CNSC do not parallel financial reporting according to generally accepted accounting principles since authorities are primarily based on cash flow requirements. Consequently, items recognized in the Statement of Financial Position and in the Statement of Operations and Net Financial Position are not necessarily the same as those provided through authorities from Parliament. Note 3 provides a reconciliation between the bases of reporting. The planned results amounts in the Statement of Operations and Net Financial Position are the amounts reported in the Future-Oriented Statement of Operations included in the 2011–12 *Report on Plans and Priorities*.

b) Net cash provided by Government of Canada

The CNSC operates within the Consolidated Revenue Fund (CRF), which is administered by the Receiver General for Canada. All cash received by the CNSC is deposited to the CRF, and all cash disbursements made by the CNSC are paid from the CRF. The net cash provided by Government of Canada is the

difference between all cash receipts and all cash disbursements, including transactions between departments and agencies of the Government.

c) Due from the Consolidated Revenue Fund

The Due from the CRF is the result of timing differences at year-end between when a transaction affects authorities and when it is processed through the CRF. The Due from the CRF represents the net amount of cash that the CNSC is entitled to draw from the CRF without further authorities to discharge its liabilities.

d) Revenues

On December 17, 2007, the Government of Canada conferred on the CNSC the authority to respond licence fee revenue.

Revenue is recognized in the period in which the underlying transaction or event that gave rise to the revenue takes place. Licence fee revenue is recognized on a straight-line basis over the period to which the fee payment pertains (normally three months or one year). Licence fees received for future year licence periods are recorded as deferred revenue.

Certain educational institutions, not-for-profit research institutions wholly owned by educational institutions, publicly funded health care institutions, not-for-profit emergency response organizations and federal government departments are not subject to the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations* (Regulations). The CNSC provides licences to these organizations free of charge. The value of licences provided free of charge is calculated on the same basis as licence fees for organizations subject to the Regulations. The CNSC does not include the foregone revenue of these licensees provided free of charge in the Statement of Operations and Net Financial Position.

e) Payable to licensees

Payable to licensees represents the calculation of the excess of collection of fees charged over the actual fees earned as at year-end.

f) Vacation pay and compensatory leave

Vacation pay and compensatory leave are accrued as the benefits are earned by employees under their respective terms of employment.

g) Grants and contributions

Grants are recognized in the year in which the conditions for payment are met. Contributions are recognized in the year in which the recipient has met the eligibility criteria or fulfilled the terms of a contractual transfer agreement, provided that the transfer is authorized and a reasonable estimate can be made.

h) Services provided without charge by other government departments

Services provided without charge by other government departments and agencies are recorded as operating expenses at their estimated cost. These include services such as accommodation provided by Public Works and Government Services Canada, contributions covering employer's share of employees' insurance premiums and costs paid by Treasury Board Secretariat, salaries and associated costs of legal services provided by Justice Canada, audit services provided by the Office of the Auditor General, and workers' compensation benefits provided by Human Resources and Skills Development Canada.

i) Employee future benefits

(i) Pension benefits: Eligible employees participate in the Public Service Pension Plan (Plan), a multi-employer pension plan, administered by the Government. The CNSC's contributions to the Plan are charged to expenses in the year incurred and represent the total CNSC obligation to the Plan. The CNSC's responsibility with regard to the Plan is limited to its contributions. Actuarial surpluses or deficiencies are recognized in the financial statements of the Government of Canada, as the Plan's sponsor.

(ii) Severance benefits: Employees entitled to severance benefits under labour contracts or conditions of employment earn these benefits as services necessary to earn them are rendered. The obligation relating to the benefits earned by employees is calculated using information derived from the results of the actuarially determined liability for employee severance benefits for the Government as a whole.

j) Accounts receivable

Accounts receivable are stated at the lower of cost and net recoverable value; a valuation allowance is recorded for receivables where recovery is considered uncertain.

k) Contingent liabilities

Contingent liabilities are potential liabilities that may become actual liabilities when one or more future events occur or fail to occur. To the extent that the future event is likely to occur or fail to occur, and a reasonable estimate of the loss can be made, an estimated liability is accrued and an expense recorded. If the likelihood is not determinable or if an amount cannot be reasonably estimated, the contingency is disclosed in a note to the financial statements.

l) Tangible capital assets

Tangible capital assets and leasehold improvements with an initial cost of \$10,000 or more are recorded at their acquisition cost. The CNSC does not capitalize intangibles, works of art and historical treasures that have cultural, aesthetic or historical value, assets located on Indian reserves and museum collections.

Amortization of tangible capital assets is calculated on a straight-line basis over the estimated useful life of the asset, as follows:

ASSET CLASS	AMORTIZATION PERIOD
Leasehold improvements	The lesser of the useful life of the improvement or the remaining term of the lease
Buildings	20 to 30 years
Furniture and equipment	5 to 20 years
Informatics equipment and software	2 to 5 years
Motor vehicles	4 years

Assets under construction are recorded in the applicable capital asset class in the year that they become available for use and not amortized until they become available for use.

m) Asset retirement obligation

The CNSC provides for its legal obligation, under a lease agreement, to return the premises to its original state. The asset retirement obligation is recognized in the year in which the associated leasehold improvement capital asset is put into use.

The obligation is recorded at the net present value of the estimated future cost of retiring the capital asset at the expiry of the lease period. The estimated cost of retirement is added to the carrying amount and amortized over the related assets' useful life. The cost estimate is subject to periodic review and any material changes in the estimated amount or timing of the

underlying future cash flow are recorded as an adjustment to the provision. Upon settlement of the liability, a gain or loss will be recorded. As the provision is recorded based on the discounted value of the projected future cash flows, it is increased annually to reflect the passage of time by removing one year's discount. The accretion is charged to the expense in the Statement of Operations and Net Financial Position. Details of the liability are provided in note 7 of these financial statements.

n) Nuclear liability reinsurance account

The CNSC administers the nuclear liability reinsurance account on behalf of the federal government. The CNSC receives the premiums, paid by the operators of nuclear installations for the supplementary insurance coverage, and credits these to the nuclear liability reinsurance account in the CRF. Since the CNSC does not have the risks and rewards of ownership, nor does it have accountability for this account, it does not include any of the associated financial activity or potential liability in its financial statements. Financial activity and liability is, however, reported in note 15 of these financial statements.

o) Measurement uncertainty

The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses reported in the financial statements. At the time of preparation of these statements, management believes the estimates and assumptions to be reasonable. The most significant items where estimates are used are contingent liabilities, the liability for employee severance benefits and the useful life of tangible capital assets. Actual results could significantly differ from those estimated. Management's estimates are reviewed periodically and, as adjustments become necessary, they are recorded in the financial statements in the year they become known.

3. Parliamentary Authorities

The CNSC receives its funding through Parliamentary and statutory authorities. Items recognized in the Statement of Financial Position and the Statement of Operations and Net Financial Position in one year may be funded through authorities in prior, current or future years. Accordingly, the CNSC has different net results of operations for the year on a government funding basis than on an accrual accounting basis. The differences are reconciled in the following table:

a) Reconciliation of net cost of operations to current year authorities used

in dollars	2012	2011
		Restated (note 17)
Net cost of operations	\$ 44,076,837	\$ 46,174,103
ADJUSTMENTS FOR ITEMS AFFECTING NET COST OF OPERATIONS BUT NOT AFFECTING AUTHORITIES:		
Amortization of tangible capital assets	(3,858,857)	(2,823,939)
Increase in vacation pay and compensatory leave	(205,381)	(561,902)
Services provided without charge by other government departments	(13,250,806)	(13,520,324)
Revenues pursuant to Subsection 29.1(1) of the <i>Financial Administration Act</i>	104,693,371	100,773,520
Decrease (increase) in employee future benefits	633,753	(1,648,656)
(Provision for) recovery of bad debts	(25,584)	3,965
Other expenses	95,668	477,920
	\$ 88,082,164	82,700,584
ADJUSTMENTS FOR ITEMS NOT AFFECTING NET COST OF OPERATIONS BUT AFFECTING AUTHORITIES:		
Acquisition of tangible capital assets	3,744,370	7,382,830
Decrease in accountable advances	—	(200)
Increase (decrease) in prepaid expenses	165,793	(18,727)
	3,910,163	7,363,903
CURRENT YEAR AUTHORITIES USED	\$ 136,069,164	\$ 136,238,590

b) Authorities provided and used

in dollars	2012	2011
PARLIAMENTARY AUTHORITY VOTED:		
Vote 20—Program expenditures	\$ 43,431,269	\$ 44,755,466
STATUTORY:		
Expenditures pursuant to Subsection 29.1(1) of the <i>Financial Administration Act</i>	81,733,689	78,643,028
Spending of proceeds from the disposal of surplus assets	11,498	—
Contributions to employee benefit plans	14,459,933	14,110,389
	139,636,389	137,508,883
LESS:		
Lapsed Vote 20—Program expenditures	3,567,225	1,270,293
CURRENT YEAR AUTHORITIES USED	\$ 136,069,164	\$ 136,238,590

4. Accounts Payable and Accrued Liabilities

The following table presents details of the CNSC's accounts payable and accrued liabilities:

<i>in dollars</i>	2012	2011
Accounts payable—Other government departments and agencies	\$ 11,311,991	\$ 9,848,855
Accounts payable—External parties	9,346,240	11,403,112
Accounts payable—Licensees	6,362,874	5,806,084
TOTAL ACCOUNTS PAYABLE AND ACCRUED LIABILITIES	\$ 27,021,105	\$ 27,058,051

5. Deferred Revenue

Deferred revenue represents the balance at year-end of amounts received and receivable from external parties for licence fees prior to services being performed. Revenue is recognized on a straight-line basis (normally three months or one year) over the period in which the service is performed. Details of the transactions related to this account are as follows:

<i>in dollars</i>	2012	2011
Balance, beginning of year	\$ 2,434,962	\$ 1,674,666
Licence fee revenue recognized during the year	(2,384,912)	(1,659,033)
Licence fee received and receivable for future years	2,219,701	2,419,329
BALANCE, END OF YEAR	\$ 2,269,751	\$ 2,434,962

6. Employee Future Benefits

a) Pension benefits

The CNSC's employees participate in the Public Service Pension Plan (Plan), which is sponsored and administered by the Government. Pension benefits accrue up to a maximum period of 35 years at a rate of 2 percent per year of pensionable service, times the average of the best five consecutive years of earnings. The benefits are integrated with the Canada/Québec Pension Plans' benefits and are indexed to inflation.

Both the employees and the CNSC contribute to the cost of the Plan. The 2011–12 expense amounts to \$10,396,692 (2010–11 — \$9,905,493), which represents approximately 1.8 times (1.9 times in 2010–11) the contributions by employees.

The CNSC's responsibility with regard to the Plan is limited to its contributions. Actuarial surpluses or deficiencies are recognized in the financial statements of the Government of Canada, as the Plan's sponsor.

b) Severance benefits

The CNSC provides severance benefits to its employees based on eligibility, years of service and salary at termination. These severance benefits are not pre-funded. Benefits will be paid from future authorities. Information about the severance benefits, measured as at March 31, is as follows:

<i>in dollars</i>	2012	2011
Accrued benefit obligation, beginning of year	\$ 18,446,796	\$ 16,798,140
Transferred to other government department, effective November 15, 2011 (note 12)	(190,588)	—
Expense for the year	2,281,304	2,530,972
Benefits paid during the year	(2,915,057)	(882,316)
ACCRUED BENEFIT OBLIGATION, END OF YEAR	\$ 17,622,455	\$ 18,446,796

As part of collective agreement negotiations with certain employee groups, and changes to conditions of employment for executives and certain non-represented employees, the accumulation of severance benefits under the employee severance pay program ceased for these employees commencing in 2012. Employees subject to these changes have been given the option to be immediately paid the full or partial value of benefits earned to date or collect the full or remaining value of benefits on termination from the public service. These changes have been reflected in the calculation of the outstanding severance benefit obligation.

7. Asset Retirement Obligation

The asset retirement obligation (obligation) is based on the current cost estimate of \$261,250 (2010–11 — \$261,250) of the site restoration plan. A revision in the estimate has been recognized using the current cost estimate which was indexed using the Bank of Canada's target inflation rate of 2% to reflect the estimated future cost of the site restoration plan. The CNSC recognizes the net present value, using the Government of Canada 10-year benchmark bond yield rate of 2.08% (3.08% in 2010–11), of the estimated future cost of \$310,676 (2010–11 — \$318,462), of restoring the leased premises at the expiry of the lease on March 31, 2020. As of March 31, 2012, the CNSC has an asset retirement obligation that can be reasonably estimated as follows:

<i>in dollars</i>	2012	2011
Opening balance	\$ (235,133)	\$ —
Recognition of the asset retirement obligation	—	(235,133)
Revision in the estimate, timing and accretion of retirement expenditures	(24,331)	—
CLOSING BALANCE	\$ (259,464)	\$ (235,133)

8. Accounts Receivable

The following table presents details of CNSC's accounts receivable:

<i>in dollars</i>	2012	2011
Receivables – Licence fees	\$ 2,082,807	\$ 2,048,241
Receivables – Suppliers	70,258	171,683
Receivables – Other government departments	12,583	135,195
	2,165,648	2,355,119
Allowance for doubtful accounts on receivables from licence fees	(369,636)	(344,053)
NET ACCOUNTS RECEIVABLE	\$ 1,796,012	\$ 2,011,066

9. Tangible Capital Assets

	Cost		Accumulated Amortization						Net book value				
	Capital asset class	Opening balance	Acquisitions	Adjustments (1)	Disposals / Write-offs	Work in progress transfers	Closing balance	Opening balance	Amortization	Adjustments (1)	Disposals / Write-offs	Closing balance	
Buildings	\$ 47,506	\$ 45,811	\$ —	\$ —	\$ —	\$ 93,317	\$ 5,637	\$ 2,382	\$ —	\$ —	\$ 8,019	\$ 85,298	\$ 41,869
Furniture and equipment	5,677,090	847,434	(614,260)	(13,800)	—	5,896,464	1,976,903	463,198	(313,345)	(13,800)	2,112,956	3,783,508	3,700,188
Informatics equipment and software	5,499,230	704,854	(2,026,030)	(146,863)	—	4,031,191	1,344,843	991,352	(679,874)	(98,927)	1,557,394	2,473,797	4,154,387
Leasehold improvements	11,210,997	95,117	—	(60,000)	890,445	12,136,559	2,029,118	2,311,103	—	(1,607)	4,338,614	7,797,945	9,181,879
Motor vehicles	636,867	114,661	—	(36,296)	—	715,232	399,502	90,822	—	(32,272)	458,052	257,180	237,364
Work-in-progress – software	—	1,038,982	—	—	—	1,038,982	—	—	—	—	—	1,038,982	—
Work-in-progress – construction	—	897,511	—	—	(890,445)	7,066	—	—	—	—	—	7,066	—
TOTAL	\$ 23,071,690	\$ 3,744,370	\$ (2,640,280)	\$ (256,959)	\$ —	\$ 23,918,811	\$ 5,756,003	\$ 3,858,857	\$ (993,219)	\$ (146,606)	\$ 8,475,035	\$ 15,443,776	\$ 17,315,687

The capital costs associated with the in-house development of software and improvements to leased accommodations are recorded as work-in-progress until they are completed and they are put into use. During the year ended March 31, 2012, work-in-progress—construction in the amount of \$890,445 (2010–11 – \$6,591,400) was completed and put into use. The reclassification of the value of these completed capital assets is reflected in the work-in-progress transfers column of the tangible capital assets table above.

(1) Effective November 15, 2011, the CNSC transferred informatics equipment and software with a net book value of \$1,346,156 and furniture and equipment with a net book value of \$300,915 to Shared Services Canada. (refer to note 12 for further details on the transfer)

10. Summary of Segmented Expenditures and Revenues by Cost Recovery Fee Category

Presentation by segment is based on CNSC's business lines. The presentation by segment is based on the same accounting policies as described in the Summary of Significant Accounting Policies in note 2. The following table presents the expenses incurred and revenues generated for the main business lines. The segment results for the period are as follows:

	Revenue	Liences provided free of charge (note 16)	2012 total value of licences and other revenue	2011 total value of licences and other revenue	2012 cost of operations	2011 cost of operations
LICENSING, CERTIFICATION AND COMPLIANCE						
Power reactors	\$ 66,480,137	\$ —	\$ 66,480,137	\$ 66,394,371	\$ 66,565,236	\$ 66,394,371
Non-power reactors	236,305	1,463,953	1,702,258	2,111,437	1,702,438	2,111,436
Nuclear research and test establishments	10,876,959	—	10,876,959	11,217,057	10,890,901	11,217,057
Particle accelerators	—	1,442,621	1,442,621	934,404	1,444,470	934,404
Uranium processing facilities	3,805,479	—	3,805,479	3,678,316	3,810,357	3,678,316
Nuclear substance processing facilities	952,909	—	952,909	753,088	954,130	753,088
Heavy water plants	12,825	—	12,825	25,624	12,841	25,624
Radioactive waste facilities	4,910,870	—	4,910,870	2,700,635	4,917,413	2,700,635
Uranium mines and mills	8,253,096	513,924	8,767,020	8,290,060	8,778,258	8,290,061
Waste nuclear substance	607,277	1,044,483	1,651,760	1,892,183	1,653,877	1,892,183
TOTAL REGULATORY ACTIVITY PLAN FEES	96,135,857	4,464,981	100,600,838	97,907,185	100,729,921	97,907,185
Nuclear substances	4,635,320	4,614,049	9,249,969	8,685,880	12,062,710	11,520,907
Closed nuclear facilities	414,375	3,187,771	3,602,146	3,022,719	3,413,037	4,102,738
Dosimetry services	78,125	4,125	82,250	53,759	1,293,190	1,018,638
TOTAL FORMULA FEES	5,128,420	7,805,945	12,934,365	11,702,358	16,768,937	16,642,283
Transport licences and transport package certificates	202,200	500	202,700	240,275	708,383	1,193,294
Radiation device and prescribed equipment certificates	124,000	15,000	139,000	89,000	827,680	404,253
Exposure device operator certificates	138,000	—	138,000	82,000	77,528	175,822
Licences to package or transport under special arrangement	17,125	9,125	26,250	720,750	24,640	634,964
TOTAL FIXED FEES	481,325	24,625	505,950	1,132,025	1,638,231	2,408,333
TOTAL LICENSING AND CERTIFICATION	101,745,602	12,295,551	114,041,153	110,801,568	118,137,089	116,957,801
NON-LICENSING AND NON-CERTIFICATION						
Co-operative undertakings	15,019	—	15,019	37,118	12,816,083	15,175,513
Stakeholder relations	—	—	—	—	12,953,312	11,619,049
Regulatory framework	—	—	—	—	749,172	1,289,614
Canadian grants and contributions	—	—	—	—	725,570	542,575
Special projects, other revenue and related expenses	2,932,750	—	2,832,750	1,626,272	2,389,082	1,383,071
TOTAL NON-LICENSING AND NON-CERTIFICATION	2,947,769	—	2,947,769	1,683,390	29,633,119	29,989,822
	\$ 104,693,371	\$ 12,295,551	\$ 116,988,922	\$ 112,464,938	\$ 148,770,208	\$ 146,947,623

11. Related Party Transactions

The CNSC is related, as a result of common ownership to all government departments, agencies, and Crown corporations. The CNSC enters into transactions with these entities in the normal course of business and on normal trade terms.

a) Services provided without charge by other government departments

During the year, the CNSC received services without charge from certain common service organizations. These services provided without charge have been recorded in the CNSC's Statement of Operations and Net Financial Position as follows:

<i>in dollars</i>	2012	2011
Accommodation provided by Public Works and Government Services	\$ 5,660,590	\$ 6,192,739
Contributions for employer's share of employee benefits provided by the Treasury Board Secretariat	7,416,678	7,171,166
Audit services provided by the Office of the Auditor General of Canada	116,646	93,772
Other	54,833	58,831
Salary and associated costs of legal services provided by Justice Canada	2,059	3,816
TOTAL	\$ 13,250,806	\$ 13,520,324

The government has centralized some of its administrative activities for efficiency and cost-effectiveness purposes and the economic delivery of programs to the public. As a result, the Government uses central agencies and common service organizations such that one department performs services for all other departments and agencies without charge.

b) Other transactions with related parties

<i>in dollars</i>	2012	2011
Accounts receivable – Other government departments and agencies	\$ 12,583	\$ 496,445
Accounts payable – Other government departments and agencies	12,427,777	11,376,345
Expenses – Other government departments and agencies	35,585,011	33,268,894
Revenues – Other government departments and agencies	12,358,356	13,025,345

Expenses and revenues disclosed in (b) include common services provided without charge, which are disclosed in (a)

12. Transfers to Other Government Departments

Effective November 15, 2011, the CNSC transferred responsibility for information technology (IT) infrastructure to Shared Services Canada in accordance with the Order in Council (OIC) of August 4, 2011, including stewardship responsibilities for the assets and liabilities related to IT infrastructure.

The transfer to Shared Services Canada is comprised of tangible capital assets in the amount of \$1,647,071 and liabilities related to employee severance benefits in the amount of \$190,588.

During the transition period, the CNSC continued to administer the transferred activities on behalf of Shared Services Canada. The administered revenues and expenses amounted to \$1,551,815 and to \$1,924,051 respectively, for the year. These administered revenues and expenses are not recorded in these financial statements. The charges for services received from Shared Services Canada are recorded in the Statement of Operations and Net Financial Position under Professional and special services.

13. Contractual Obligations

The nature of the CNSC's activities can result in some large multi-year contracts and obligations whereby the CNSC will be obligated to make future payments when the services and goods are received. Significant contractual obligations that can be reasonably estimated are summarized as follows:

<i>in dollars</i>	2013	2014	2015	2016	2017 and thereafter	Total
Acquisitions of goods and services	\$ 8,090,134	\$ 1,066,965	\$ 317,124	\$ 1,179	\$ —	\$ 9,475,402
Operating leases	65,686	24,486	10,446	201	—	100,819
TOTAL	\$ 8,155,820	\$ 1,091,451	\$ 327,570	\$ 1,380	\$ —	\$ 9,576,220

14. Contingent Liabilities

Claims have been made against the CNSC in the normal course of operations. These claims include items with pleading amounts and others for which no amount is specified. As at March 31, 2012, contingent liabilities for claims and pending litigation has been estimated at \$57,640,000 (2010–11 — \$57,640,000). Management has determined that an unfavourable outcome is unlikely.

15. Nuclear Liability Reinsurance Account

Under the *Nuclear Liability Act (NLA)*, operators of designated nuclear installations are required to possess basic and supplementary insurance of \$75,000,000 per installation for specified liabilities. The federal government has designated the Nuclear Insurance Association of Canada (NIAC) as the sole provider of third-party liability insurance and property insurance for the nuclear industry in Canada. The NIAC provides insurance to nuclear operators under a standard policy.

The policy consists of two types of coverage: Coverage A and Coverage B. Coverage A includes only those risks that are accepted by the insurer; that is, bodily injury and property damage. Coverage B risks include personal injury that is not bodily, for example, psychological injury, and damage arising from normal emissions, and damage due to acts of terrorism.

The NIAC receives premiums from operators for both coverages; however, premiums for Coverage B risks are remitted to the federal government, which reinsurance these risks under its reinsurance agreement with the NIAC.

Through the reinsurance agreement, the federal government assumes the liability associated with the difference between the basic insurance coverage provided by the NIAC and the full \$75,000,000 of liability imposed by the *NLA*, as well as for events listed under coverage B. As of March 31, 2012, the total supplementary insurance coverage is \$584,500,000 (2010–11 — \$584,500,000).

All premiums paid by the operators of nuclear installations for the supplementary insurance coverage are credited to a nuclear liability reinsurance account (account) in the CRF. Premiums received in respect of coverage for damage due to acts of terrorism amount to \$285,728 (2010–11 — \$279,835). Claims against the supplementary insurance coverage are payable out of the CRF and charged to the account. There have been no claims against—or payments out of—the account since its creation.

As explained in note 2n, the CNSC administers the nuclear liability reinsurance account on behalf of the Government of Canada through a specified purpose account consolidated in the *Public Accounts of Canada*. During the year, the following activity occurred in this account:

<i>in dollars</i>	2012	2011
Opening balance	\$ 2,521,926	\$ 2,240,491
Receipts deposited	287,328	281,435
CLOSING BALANCE	\$ 2,809,254	\$ 2,521,926

16. Licences Provided Free of Charge by the CNSC

The CNSC provides licences free of charge to educational institutions, not-for-profit research institutions wholly owned by educational institutions, publicly funded health care institutions, not-for-profit emergency response organizations, and federal government departments and agencies. The total value of these licences amounted to \$12,295,551 (2010–11 — \$11,691,438). The foregone revenue is not included in the Statement of Operations and Net Financial Position.

17. Accounting Changes

During 2011, amendments were made to *Treasury Board Accounting Standard 1.2—Departmental and Agency Financial Statements* to improve financial reporting by government departments and agencies. The amendments are effective for financial reporting of fiscal years ending March 31, 2012, and later. These changes have been applied retroactively, and comparative information for 2010–11 has been reclassified.

Net debt (calculated as liabilities less financial assets) is now presented in the Statement of Financial Position. Accompanying this change, the CNSC now presents a Statement of Change in Net Debt and no longer presents a Statement of Equity.

Government funding and transfers, as well as the credit related to services provided without charge by other government departments, are now recognized in the Statement of Operations and Net Financial Position below “Net cost of operations before government funding and transfers.” In previous years, the CNSC recognized these transactions directly in the Statement of Equity of Canada.

18. Comparative Information

Comparative figures have been reclassified to conform to the current year’s presentation.

SUMMARY OF THE ASSESSMENT OF EFFECTIVENESS OF THE SYSTEM OF INTERNAL CONTROL OVER FINANCIAL REPORTING AND THE CANADIAN NUCLEAR SAFETY COMMISSION'S ACTION PLAN FOR THE FISCAL YEAR 2012–13

Annex to the Statement of Management Responsibility Including Internal Control Over Financial Reporting

Note to the Reader

The Treasury Board *Policy on Internal Control* requires that departments and agencies demonstrate the measures they are taking to maintain an effective system of internal control over financial reporting (ICFR).

As part of this policy, departments and agencies are expected to do the following:

- | conduct annual assessments of their system of ICFR
- | establish action plan(s) to address any gaps
- | to attach a summary of their assessment results and action plan to their *Statement of Management Responsibility*

Effective systems of ICFR aim to achieve reliable financial statements and provide assurance that:

- | transactions are appropriately authorized
- | financial records are properly maintained
- | assets are safeguarded from risks such as waste, abuse, loss, fraud and mismanagement
- | applicable laws, regulations and policies are complied with

It is important to note that the system of ICFR is not designed to eliminate all risks. Rather, the system aims to mitigate risks to a reasonable level with controls that are balanced with and proportionate to these risks.

The maintenance of an effective system of ICFR is an ongoing process designed to identify key risks, to assess and adjust the effectiveness of associated key controls, and to monitor the controls' performance in support of continuous improvement. As a result, departmental assessments of the effectiveness of systems of ICFR will vary in scope, pace and status. These variations will occur based on the risks and unique circumstances of each organization in question.

1. Introduction

This document is annexed to the *Statement of Management Responsibility Including Internal Control Over Financial Reporting* of the Canadian Nuclear Safety Commission (CNSC), for the fiscal-year 2011–12. This document was published for the first time for the year ended March 31, 2011, as required by the Treasury Board *Policy on Internal Control*, and provides summary information on the CNSC's measures to maintain an effective system of ICFR. It provides summary information on the planning and scoping conducted at the CNSC, as well as information on the subsequent testing of the system. The report also includes progress, results and related action plans along with some financial highlights pertinent to understanding the CNSC's unique control environment.

1.1 Authority, mandate and program activities

The CNSC was established in 1946 by the *Atomic Energy Control Act*. Prior to May 31, 2000, when the *Nuclear Safety and Control Act* (NSCA) came into effect, the CNSC was known as the Atomic Energy Control Board (AECB). The CNSC is a departmental corporation listed in Schedule II to the *Financial Administration Act* and reports to Parliament through the Minister of Natural Resources.

The NSCA provides comprehensive powers to the CNSC to establish and enforce national standards for nuclear energy in the areas of health, safety and environment. It establishes a basis for implementing Canadian policy and fulfilling Canada's obligations with respect to the non-proliferation of nuclear weapons. The CNSC is empowered to require financial guarantees, order remedial action in hazardous situations and compel responsible parties to bear the costs of decontamination and other remedial measures.

The CNSC's objectives are to:

- | regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and information in order to:
 - a) prevent unreasonable risk to the environment, to the health and safety of persons and to national security
 - b) achieve conformity with measures of control and international obligations to which Canada has agreed
 - | disseminate scientific, technical and regulatory information concerning:
 - a) its activities
 - b) the development, production, possession, transport and use of nuclear energy and substances
 - c) the effects of nuclear energy's and substances' use on the environment and on the health and safety of persons

The *Nuclear Liability Act* is also administered by the CNSC, which designates nuclear installations, prescribes basic insurance to be carried by the operators of such nuclear installations, and administers supplementary insurance coverage premiums for these installations.

Pursuant to the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*, the CNSC recovers costs related to its regulatory activities from users licensed under the NSCA. These costs include the technical assessment of licence applications, compliance inspections and the development of licence standards.

1.2 Financial highlights

The CNSC's audited financial statements for the fiscal year 2010–11 can be found on the CNSC Web site¹. Information can also be found in the *Public Accounts of Canada*².

- | Total expenses were \$148.8 M. The majority of these expenses were comprised of salaries and benefits (73% or \$108.4 M with 834 employees) followed by professional and special services (11% or \$15.9 M).
- | Total revenues of \$104.7M were earned primarily from licensing fees (97% or \$101.7 M).

| Total assets and liabilities were \$44.5 M and \$53.3 M, respectively. Assets primarily consisted of funds due from the consolidated revenue fund (\$27.0 M), accounts receivable (\$1.8 M) and tangible capital assets (\$15.4 M). Accounts payable and accrued liabilities (\$27.0 M) and accrued employee benefits (\$17.6 M) comprise the majority (84%) of the liabilities.

- | The finance function of the CNSC is centralized at the headquarters offices in Ottawa.
- | The CNSC uses Freebalance for its financial accounting system and a Cognos-based enterprise planning and business intelligence system for costing and financial management and reporting. These interface with the CNSC's Licensing Operations User Interface System to support the CNSC's revenue management.

1.3 Audited financial statements

The Auditor General of Canada (AG) has issued an unqualified audit opinion of the CNSC's financial statements, each year, since the CNSC was created in 2000. At the CNSC's specific request, the AG also audits the organization's compliance with the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations* (CRFR) and has issued an unqualified opinion in this regard since the establishment of the CRFR in 2003.

1.4 Service arrangements relevant to financial statements

The CNSC relies on other organizations and their internal controls for the processing of certain transactions and for information used to calculate certain liabilities that are recorded in its financial statements:

- | Public Works and Government Services Canada (PWGSC) centrally administers the payments of salaries and expenses as well as the procurement of certain goods and services.
- | The Treasury Board Secretariat provides the CNSC with information used to calculate various accruals and allowances, such as the accrued severance liability.
- | Shared Services Canada is responsible for managing and maintaining the CNSC's information technology infrastructure and security.

1 See nuclearsafety.gc.ca/eng/readingroom/reports/annual/index.cfm

2 To be published in the fall of 2012 at <http://www.tpsgc-pwgsc.gc.ca/recgen/txt/73-eng.html>

1.5 Material changes in fiscal year 2011–12

The following changes had an impact on the system of internal control:

- | upgrade of the Freebalance financial management system to version 6.5e
- | implementation of an accounts receivable sub-ledger, integrating the financial accounting system with the CNSC's Licensing Operations User Interface System
- | Creation of Shared Services Canada, a central agency that will transform information technology services and optimize resources across the federal public service, including the CNSC.

2. The CNSC's Control Environment Relevant to Internal Control Over Financial Reporting

The CNSC's focus is to ensure risks are well-managed through a responsive and risk-based control environment that enables continuous improvement and innovation. It also recognizes it is important that senior management set a tone that will ensure staff at all levels understand their roles in maintaining effective systems of ICFR, and that they are well-equipped to carry out their duties.

2.1 Key positions, roles and responsibilities

The CNSC has the following key positions and committees that are responsible for maintaining and reviewing the effectiveness of its system of ICFR:

President – The CNSC's President, as Accounting Officer, assumes overall responsibility and leadership for measures taken to maintain an effective system of internal control. The President also chairs the Management Committee.

Chief Financial Officer (CFO) – The CNSC's CFO reports directly to the President and provides leadership for the coordination, coherence and focus of the design, implementation, assessment and maintenance of an effective and integrated system of ICFR.

Vice-Presidents – The CNSC's Vice-Presidents in charge of program delivery are responsible for maintaining and reviewing the effectiveness of the system of ICFR falling within their operational areas.

Chief Audit Executive (CAE) – The CNSC's CAE reports directly to the President and provides assurance through periodic risk-based internal audits, which are instrumental to the maintenance of an effective system of ICFR.

Departmental Audit Committee (DAC) – The

DAC is an advisory committee comprised of three external members and two internal members. The DAC ensures that the President has independent, objective advice, guidance and assurance on the adequacy of the CNSC's control and accountability processes. As such, it reviews the CNSC's corporate risk profile and its system of internal control, including the annual assessment and action plans relating to the system of ICFR.

Management Committee (MC) – As the CNSC's central decision-making body, the MC reviews, approves and monitors the corporate risk profile and the CNSC's system of internal control, including the assessment and remedial actions relating to the system of ICFR.

2.2 Key measures in place at the CNSC

The CNSC's control environment includes a set of measures to equip its staff to manage risks well, by raising awareness, providing appropriate knowledge and tools and developing skills. Key measures include:

- | an Office of Audit and Ethics, which manages values and ethics programs, internal disclosure and the *Public Servants Disclosure Protection Act*, and conflict-of-interest and post-employment policies
- | annual senior management performance contracts with clear financial management responsibilities
- | delivery of a Management Fundamentals training program, including security, information management, information technology, human resource management and financial delegation roles and responsibilities
- | the operation of the Harmonized Plan for Improvement Initiatives, a corporate improvement plan that integrates, aligns and monitors all cross-functional CNSC improvement initiatives in a single, prioritized plan
- | a CFO function that reports directly to the President and is accountable for:
 - significant and ongoing investment in functional financial staff training
 - maintenance of a centre of expertise on ICFR
 - financial policies tailored to the CNSC's business and control environment
 - regular update of delegated financial authorities matrix
 - operation of a "Quality Assurance" compliance monitoring framework

- documentation of all key business processes to support the management and oversight of ICFRs

3. Assessment of the Canadian Nuclear Safety Commission's System of Internal Control Over Financial Reporting

3.1 Assessment objective and scope

- | The self-assessment is a systematic review conducted by management to provide assurance on internal control over financial reporting. The annual assessment is intended to be led and administered by the CFO and supported by the senior management team.
- | The assessment's objective is to ensure that the systems of ICFR are effective in preventing material misstatements or errors in the CNSC's financial statements. In this context, an error is considered to be material if its omission or misstatement could have an impact on the decisions of the financial statements' users.

To determine the scope of the undertaking, the CNSC undertook a scoping and planning exercise to identify business process controls, entity-level controls, and general computer controls associated with key risks to financial reporting. The CNSC considered both quantitative and qualitative risk factors during the scoping and planning. These included, but were not limited to the following: materiality; transactions requiring significant judgment or estimations (e.g., contingent liabilities); complexity of operations; susceptibility to fraud; Auditor General recommendations concerning the financial statements or related matters; and internal audit findings.

Business processes are defined as the specific processes that support the treatment of financial transactions. The CNSC identified the following six business processes for assessment, based on risks: payroll, purchase to pay, revenues, capital assets, grants and contributions, and year-end financial close and statement preparation.

Entity-level controls are defined as the overarching controls of the organization that set the "tone from the top". The following four entity-level control areas were identified: governance and accountability, risk management, information and communication, and monitoring.

General computer controls, also known as information technology general controls, are defined as controls over the financial management and reporting systems and information technology (IT) infrastructure used across the organization. The CNSC is responsible for assessing the effectiveness of all key IT general controls for the systems that it fully manages. Where the CNSC acquires system-based services from other government departments (e.g., regional pay system, standard pay system, or IT infrastructure), self-assessment will be limited to components of the systems controlled by the CNSC.

These control areas are the baseline by which the CNSC developed its self-assessment plan. It reviews and updates this plan annually to reflect changes in risks and findings.

3.2 Assessment elements and methodology

Be it to support its year-end financial statement audit or the requirements of the *Policy on Internal Control*, the CNSC's ICFR aims to provide reasonable assurance that:

- | transactions are appropriately authorized
- | financial records are properly maintained
- | assets are safeguarded
- | applicable laws, regulations and policies are complied with

This assurance will be achieved through the assessment of the **design and operating effectiveness** of the system of ICFR, the creation of a **management action plan** to address significant gaps in design and operating effectiveness, and the **ongoing monitoring and continuous improvement** of all key elements of this system.

Design effectiveness means that key control points exist, are known, documented, and are aligned with the risks (i.e., controls are balanced with and proportionate to the risks they aim to mitigate). The assessment includes the mapping of key business processes and IT systems, identification of key risks and internal controls implemented to mitigate these risks, and a walk-through of the process or systems to confirm their existence.

Operating effectiveness means that the application of key controls is tested over a defined period, normally the fiscal year, and that they are working as intended. The assessment activities include performing a sample test of transactions to determine whether the documented procedures and internal control measures are being consistently followed and applied.

Management action plan – A report will be issued internally, reporting on any deficiencies identified during the tests of design and operating effectiveness. The process owner will develop a management action plan, which will be included in the report, to remediate any identified gaps in a timely manner.

Ongoing monitoring and continuous improvement – Once any gaps have been remediated, the design and operating effectiveness of the key controls will be reassessed, in order to ensure the actions taken have addressed the gaps. Thereafter, annual monitoring activities will ensure that the control design continues to address key risks and that operating effectiveness is maintained.

4. Canadian Nuclear Safety Commission Assessment Results as at March 31, 2012

4.1. Accomplishments in fiscal year 2011–12

The CNSC implemented its commitments for 2011–12 as follows:

- | implementation of formal approval of changes to regulatory activities with revenue implications
- | publication of revenue determination and adjustment procedures, including inputs, rationale and assumptions
- | publication of performance indicators for overtime management at the entity level
- | the performance of a CNSC-wide fraud risk assessment and implementation of mitigating controls
- | development of a five-year investment plan that provides strategic-level information on the planning and management of CNSC assets and acquired services, as well as information on associated key risks and mitigation strategies

4.2. Progress made in fiscal year 2011–12

In the assessment of its key controls, the CNSC continued its assessment of design effectiveness, which is a prerequisite to the assessment of operating effectiveness. The assessment of design effectiveness will continue in 2012–13 and will be followed in subsequent fiscal years by the activities described in section 3.2.

5. Canadian Nuclear Safety Commission Action Plan for 2012–13 and Subsequent Fiscal Years

The CNSC is now in the third year of the ICFR assessment and improvement plan. The activities are divided into two components: implementing the previously identified corrective actions, assessing the effectiveness of implemented corrective actions, and the completion of assessments in accordance with the timeline set out in section 5.2.

5.1. Implementation of previously identified management action plans

The following management action plans will be implemented in 2012–13.

Information technology general controls

The following actions will be implemented as a result of 2010–11 review findings and recommendations:

- | complete the standardization and documentation of administrator and user access approval and withdrawal processes
- | complete the implementation of program change tracking and documentation
- | complete the implementation and documentation of infrastructure change operating procedures and documentation

All management action plans resulting from assessments conducted during the 2011–12 fiscal year have been fully implemented.

5.2. Assessments, ongoing monitoring and continuous improvement plan

The CNSC intends to complete its self-assessment plan and engage the already completed items of its system of internal control in the monitoring and continuous improvement phase, in accordance with the following table:

	2012-13	2013-14
BUSINESS PROCESSES		
PAYROLL		
Assessment and remediation	M	
PURCHASE TO PAY		
Assessment and remediation	C	
REVENUES		
Assessment and remediation		C
CAPITAL ASSETS		
Assessment and remediation		C
GRANTS AND CONTRIBUTIONS		
Assessment and remediation		C
YEAR-END FINANCIAL CLOSE AND STATEMENT PREPARATION		
Assessment and remediation		C
ENTITY-LEVEL CONTROLS		
GOVERNANCE AND ACCOUNTABILITY		
Assessment and remediation	C	
RISK MANAGEMENT		
Assessment and remediation	C	
INFORMATION AND COMMUNICATION		
Assessment and remediation	C	
MONITORING		
Assessment and remediation	C	
INFORMATION TECHNOLOGY GENERAL CONTROLS		
Remediate design gaps	C	
Remediate operating gaps	C	
Assessment and remediation		M
C – Completed in that period		
M – Monitoring and continuous improvement		

ANNEX A

COMMISSION HEARINGS AND OPPORTUNITIES TO BE HEARD

HEARINGS

Nuclear power plants

Hydro-Québec:

- | Decision to renew the Gentilly-2 Nuclear Generating Station and its waste management facility operating licences for a period of five years – Public hearing (December 10, 2010 and April 13–14, 2011)
- | Decision to amend Hydro-Québec's licence to operate the Gentilly-2 Nuclear Generating Station – Abridged hearing (February 7, 2012)

New Brunswick Power Nuclear Corporation:

- | Decision to amend the Point Lepreau Generating Station power reactor operating licence – Abridged hearing (August 26, 2011)
- | Decision to accept the request for approval to reload fuel and restart the Point Lepreau Generating Station, and application to renew the power reactor operating licence for the Point Lepreau Generating Station – Public hearing (October 6 and December 1 and 2, 2011)

Ontario Power Generation Inc.:

- | Decision to amend the Pickering Nuclear Generating Station A power reactor operating licence to reflect administrative changes – Abridged hearing (June 30, 2011)
- | Decision to amend the Darlington Nuclear Generating Station power reactor operating licence to reflect updates in documentation – Abridged hearing (May 31, 2011)
- | Decision to amend the Pickering Nuclear Generating Station B power reactor operating licence to reflect updates in documentation – Abridged hearing (May 31, 2011)
- | Decision to accept the EA scoping information document (scope of project and assessment) for the proposed Darlington Nuclear Generating Station refurbishment and continued operation – Abridged hearing (October 28, 2011)

- | Decision to amend the Darlington Nuclear Generating Station power reactor operating licence to reflect updates in documentation – Abridged hearing (November 22, 2011)
- | Decision to amend the Pickering Nuclear Generating Station A power reactor operating licence to reflect updates in documentation – Abridged hearing (November 22, 2011)
- | Decision to amend the Pickering Nuclear Generating Station B power reactor operating licence to reflect updates in documentation – Abridged hearing (November 22, 2011)
- | Decision to amend the Darlington Nuclear Generating Station power reactor operating licence to reflect an update in documentation – Abridged hearing (February 7, 2012)
- | Decision to amend the Pickering Nuclear Generating Station B power reactor operating licence to reflect an update in documentation – Abridged hearing (February 7, 2012)
- | Decision to amend the Pickering Nuclear Generating Station B power reactor operating licence – Abridged hearing (February 24, 2012)
- | Decision to amend the Pickering Nuclear Generating Station B power reactor operating licence – Abridged hearing (March 29, 2012)

URANIUM MINES AND MILLS

Cameco Corporation:

- | Decision to amend the Blind River Fuel Facility operating licence – Abridged hearing (June 9, 2011)
- | Decision to accept the proposed project-specific guidelines scoping document for the Eagle Point Water Management Project, Rabbit Lake Operation – Abridged hearing (April 21, 2011)
- | Decision to accept the EA screening report for the Cigar Lake Water Inflow Management Project – Abridged hearing (June 23, 2011)

- | Decision to accept the proposed project-specific guidelines scoping document for the preparation of an environmental impact statement for Cameco Corporation's Key Lake Extension Project – Abridged hearing (August 12, 2011)
- | Decision to renew the nuclear fuel facility operating licence for the Blind River Refinery – Public hearing (November 3, 2011, and January 19, 2012)
- | Decision to renew the operating licence for Cameco Fuel Manufacturing Inc. in Port Hope, Ontario – Public hearing (November 3, 2011, and January 18 and 19, 2012)
- | Decision to renew the Class IB nuclear fuel facility operating licence for the Port Hope Conversion Facility – Public hearing (November 3, 2011, and January 17 and 18, 2012)
- | Decision to amend the McArthur River Uranium Mine operating licence – Abridged hearing (March 22, 2012)

Strateco Resources Inc.:

- | Decision to accept the comprehensive study report regarding the proposed underground uranium exploration project in Matoush, Quebec – Abridged hearing (July 29, 2011)

Processing and research facilities

AECL:

- | Decision to amend the Chalk River laboratories operating licence to reflect updates in documentation – Abridged hearing (April 29, 2011)
- | Decision to amend the Dedicated Isotope Facilities operating licence to reflect updates in documentation – Abridged hearing (April 29, 2011)
- | Decision to amend the Chalk River Laboratories operating licence for the undertaking of decommissioning activities at two facilities – Abridged hearing (August 5, 2011)
- | Decision to accept a waste nuclear substance licence for the Port Granby Project – Public hearing (September 27, 2011)
- | Decision to renew the Chalk River Laboratories nuclear research and test establishment operating licence – Public hearing (June 8 and October 4, 2011)
- | Decision to accept the EA screening regarding the proposal to decommission the plutonium tower at Chalk River Laboratories in Chalk River, Ontario – Abridged hearing (December 16, 2011)

Nordion (Canada) Inc.:

- | Decision to amend nuclear substance processing facility operating licence – Abridged hearing (February 9, 2012)

Canadian Light Source Inc.:

- | Decision to amend particle accelerator operating licence – Public hearing (June 8, 2011)

TRIUMF Accelerators Inc.:

- | Decision to amend the TRIUMF particle accelerator operating licence – Abridged hearing (August 12, 2011)
- | Decision to amend the TRIUMF Accelerators Inc. particle accelerator operating licence – Abridged hearing (November 28, 2011)
- | Decision to renew (three-month extension) particle accelerator operating licence – Abridged hearing (January 26, 2012)

SLOWPOKE-2 Reactors

Dalhousie University:

- | Decision to accept the issuance of a licence to abandon for the Dalhousie University SLOWPOKE-2 reactor facility – Abridged hearing (August 31, 2011)

University of Toronto:

- | Decision to revoke the University of Toronto SLOWPOKE-2 reactor facility abandonment licence – Abridged hearing (February 24, 2012)

OPPORTUNITIES TO BE HEARD

Viterra Inc.:

- | Decision to accept the redetermination of the Commission order issued on November 27, 2009 – Public hearing (August 11, 2011)

Health Canada:

- | Decision to accept the opportunity to be heard on the designated officer order issued to Health Canada National Dosimetry Services on February 23, 2012, and dosimetry service licence amendment request – Abridged hearing (March 29, 2012)

REVOCATIONS

- | Revocation of the current licence for the Madawaska Mine – Abridged hearing (July 28, 2011)

ANNEX B

REGULATORY FRAMEWORK PROJECTS PUBLISHED/COMPLETED IN 2011–12

Guide for Applicants and Intervenors Writing CNSC Commission Member Documents (GD-379)

(published March 29, 2012)

GD-379 provides guidance for writing Commission Member Documents (CMDs) for submission to the CNSC.

The document addresses the following aspects of writing an effective CMD:

- | a brief overview of the hearing process
- | guiding principles and points to remember
- | writing tips (such as principles of plain language, and the use of visual aids)
- | suggested format and order of information for a licensing decision CMD being prepared by an applicant or intervenor, so that externally submitted CMDs are in the same format as CNSC staff submissions
- | preparing and filing a CMD presentation

Guidance on Safety Analysis for Nuclear Power Plants (GD-310)

(published March 28, 2012)

GD-310 provides guidance on how to meet the requirements of RD-310, *Safety Analysis for Nuclear Power Plants*. GD-310 sets out the guidelines related to safety analysis, including the selection of events to be analyzed, acceptance criteria, safety analysis methods, and safety analysis documentation and review.

Management of Uranium Mine Waste Rock and Mill Tailings (RD/GD-370)

(published March 23, 2012)

RD/GD 370 sets out the CNSC's requirements for the sound management of mine waste rock and mill tailings resulting from site preparation, construction, operation and decommissioning of new uranium mine or mill projects in Canada, to ensure the protection of the environment and the health and safety of people.

This regulatory document also provides guidance to applicants regarding the CNSC's expectations for new mining projects throughout Canada on the management of waste rock and tailings generated by uranium mining and milling operations.

This regulatory document is based on the discussion paper DIS 10 01, *Management of Uranium Mine Waste Rock and Mill Tailings*, which was posted for public consultation in 2010.

Public Information and Disclosure (RD/GD-99.3)

(published March 14, 2012)

RD-99.3 sets out the CNSC's requirements related to public information and disclosure programs that are submitted by applicants and licensees of Class I and Class II nuclear facilities, and uranium mines and mills, for all lifecycle phases. The previous public information program required of licensees has been supplemented with a public disclosure protocol.

Discussion Paper: Process for Establishing Release Limits and Action Levels at Nuclear Facilities (DIS-12-02)

(published February 22, 2012)

This discussion paper sets out a proposed methodology for consistent establishment of limits and action levels on environmental releases at Class I nuclear facilities, uranium mines and mills, and nuclear waste management facilities, to ensure the protection of the environment and health and safety of Canadians. The objective is to establish limits that minimize the overall quantity and concentration of contaminants released to the environment; this is to ensure that the *Canadian Environmental Protection Act*'s principles of pollution prevention and that the NSCA's principle of adequate precaution to control releases are respected.

**Discussion Paper: Protection of
Groundwater at Nuclear Facilities
in Canada (DIS-12-01)**
(published February 17, 2012)

This discussion paper sets out a proposed approach for providing direction to current nuclear facility licensees, as well as to new applicants, in Canada to ensure the protection of groundwater. Relevant facilities include Class I nuclear facilities, uranium mines and mills, and nuclear waste management facilities. The discussion paper proposes to consolidate, clarify and build on existing environmental protection requirements. Adoption of this proposed approach would provide future regulatory direction to nuclear facility licensees.

**Design, Testing and Performance of
Exposure Devices (RD/GD-352)**
(published January 25, 2012)

RD/GD-352 provides design, testing and performance specifications for the design and testing of exposure device systems, including the remote control, the exposure device and projection sheath. The document also addresses the use of non-original equipment manufacturer components or accessories.

**Regulations Amending the Packaging
and Transport of Nuclear Substances
Regulations (interim exemptions)**

(published December 22, 2011)

The *Packaging and Transport of Nuclear Substances Regulations* (PTNSR) were amended to exempt the following items following their sale to end-users:

- | check sources that contain a small, very low-risk quantity of nuclear substances
- | radiation devices containing less than 10 times the exemption quantity (EQ) of a radioactive nuclear substance

Radiation devices containing more than 1 time the EQ of radioactive nuclear substances must be certified by the CNSC for use in Canada and this requirement will remain in effect. Manufacturers and distributors are not covered under these new exemptions, and will still be required to comply with the PTNSR.

These amendments have no impact on the environment, the health and safety of persons, and national security, given the low quantity of nuclear substances involved. These amendments conform to measures of control and international obligations to which Canada has agreed. The regulatory burden

is lessened for the users of the exempted radiation devices or check sources, because of simplified requirements pertaining to the domestic transport of the exempted devices.

**Licence Application Guide: Nuclear
Substances and Radiation Devices
(RD/GD-371)**

(published November 15, 2011)

RD/GD-371, *Licence Application Guide – Nuclear Substances and Radiation Devices* provides guidance on how to complete and submit an application for a licence for nuclear substances and radiation devices, in accordance with the NSCA and its regulations.

**Licence Application Guide: Class II Isotope
Production Accelerators (RD/GD-289)**

(published November 14, 2011)

RD/GD-289 provides interested applicants with information on how to complete and submit an application for a licence for Class II non-radiotherapy accelerator facilities, in accordance with the NSCA and its regulations.

**Licence Application Guide: Licence to
Construct a Nuclear Power Plant
(RD/GD-369)**

(published August 29, 2011)

GD-369 describes the structure and content for an application for a licence to construct an NPP. The document applies to applications for a licence to construct a water-cooled NPP.

GD-369 closely follows the format of the IAEA Safety Guide No. GS-G-4.1, *Format and Content of the Safety Analysis Report for Nuclear Power Plants*, but it is more specific to the Canadian context.

In following GD-369, applicants can submit the appropriate information to demonstrate that they are qualified, and will make adequate and reasonable provisions to undertake the activity to be licensed, pursuant to subsection 24(4) of the NSCA and associated regulations.

*Supplementary Information for Licensees:
Aboriginal Consultation (Web)
(published August 9, 2011)*

Licensees of nuclear projects do not bear the Crown's legal obligation to consult Aboriginal peoples under section 35 of the *Constitution Act, 1982*. However, where appropriate, licensee engagement with Aboriginal groups is significant because consultation activities can inform and assist those of CNSC staff and help the CNSC make effective decisions.

This Web publication provides guidance to licensees and applicants on Aboriginal consultation.

*Licence Application Guide: Service Class II
Prescribed Equipment (RD/GD-207)
(published June 7, 2011)*

Applicants are required to apply to the CNSC for a licence to service Class II prescribed equipment.

RD/GD-207 provides information on how an applicant can apply for the licence, including detailed instructions on the completion of the application form.

*Deterministic Safety Analysis for Small
Reactor Facilities (RD-308)
(published June 7, 2011)*

RD-308 provides the requirements for deterministic safety analysis for small reactors. This regulatory document sets out the technical criteria against which the CNSC will review deterministic safety analysis for small reactors. These criteria will assure that adequate safety analyses are completed for the siting, construction, operation and decommissioning of these reactors, in accordance with defined regulatory requirements.

*Aging Management for Nuclear Power
Plants (RD-334)
(published June 7, 2011)*

RD-334 sets out the CNSC's requirements for managing the aging of structures, systems, and components (SSCs) of an NPP. Aging management is the engineering, operational, inspection, and maintenance actions that control, within acceptable limits, the effects of physical aging and obsolescence of SSCs that occur over time or with use. An aging management program is a set of policies, processes, procedures, arrangements, and activities for managing the aging of SSCs.

*Design of Small Reactor Facilities (RD-367)
(published June 7, 2011)*

RD-367 provides applicants with the design requirements for new small reactors. The document identifies the overall safety objectives to be achieved, key safety concepts – such as the principle of defence-in-depth, and the consideration of multiple physical barriers – and other important engineering principles. System-specific requirements will also be described. Recognizing that some requirements may not be relevant to all types of facilities, the document also includes an explanation of the graded approach.

These publications are available on the CNSC Web site at nuclearsafety.gc.ca.

nuclearsafety.gc.ca

VISIT THE CNSC'S WEB SITE FOR MORE INFORMATION ABOUT
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Canadian Nuclear Safety Commission

280 Slater St, P.O. Box 1046, Station B
Ottawa, ON K1P 5S9

Telephone: 613-995-5894 or
1-800-668-5284 (in Canada)
Fax: 613-995-5086

Email: info@cnsc-ccsn.gc.ca
Web site: nuclearsafety.gc.ca

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